POUR SOME SUGAR IN ME: HOW IMPORTING AND SUPPORTING SUGARCANE ETHANOL PRODUCTION WILL NOT ONLY MAKE FRIENDS, BUT SAVE AMERICA FROM AN ADDICTION TO FOREIGN OIL OR WHY THE UNITED STATES SHOULD REMOVE THE TARIFF ON SUGARCANE ETHANOL

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I. FIRST STEP: ADMITTING THERE IS A PROBLEM

At a time in American history when a Democrat, former Vice President Al Gore, wins the Nobel Peace Prize for "[his] efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change[,]"[1] and a Republican President, George W. Bush, has openly admitted that America is addicted to foreign oil,[2] it appears that a broad national consensus regarding the environmental and national security problems related to an addiction to foreign

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1. Press Release, The Nobel Foundation, The Nobel Peace Prize for 2007 (Oct. 12, 2007), *available at* http://nobelprize.org/nobel_prizes/peace/laureates/2007/press.html.

2. President George W. Bush, State of the Union Address (Jan. 31, 2006), *available at* http://www.cspan.org/executive/transcript.asp?cat=current_event&code=bush_admin&year=2006.

oil has emerged in the United States.[3] While this addiction to foreign oil has far ranging effects on everything from powering our homes and offices, to the production of a number of fungible goods, such topics will have to be left for another author. This Note will deal more directly with the statements in the proceeding paragraphs of the President's State of the Union Address. These paragraphs include a number of ways in which the United States and its citizens can ostensibly reduce or eliminate the need for foreign oil and gasoline in their cars.[4] The problem with the President's address is not the ideas found within it, but those that are left out of it. The reasons for offering such a short list of ideas are unknown to this author. It may be that President Bush was attempting to entice a Nation, dependent on foreign oil for their transportation needs,[5] to make positive changes by offering solutions that could and have been developed, implemented, and used within the United States, as well as the benefits derived therefrom.[6] But in his address, the President failed to outline an important part of any attempt the United States will make towards energy independence; the importation of alternative fuels and technologies from countries that have proven records of development in use of bio-fuels, such as ethanol.[7] This Note will look at the leader in the implementation and use of ethanol, Brazil.[8]

The first section will examine how the United States came to be so addicted to oil and why, due to a limited domestic oil supply, this addiction requires

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3. *See* Memorandum from Global Strategy Group to Yale Ctr. for Envtl. Law & Policy 3 (Mar. 7, 2007), *available at* http://www.loe.org/images/070316/yalepole.doc (finding ninety-three percent of Americans surveyed found that dependence on foreign oil is a serious problem); Press Release, Zogby International, UPI/Zogby Poll: Ethanol Most Likely Alternative to Fossil Fuel (Jan. 23, 2007), *available at* http://www.zogby.com/search/readnews.cfm?ID=1241 (finding ninety-six percent of Americans surveyed agreed that America was too reliant on foreign oil).

4. *See* President George W. Bush, *supra* note 2 (arguing for increases in technology for batteries in hybrid and electric cars, for hydrogen fueled cars and increasing research to make ethanol from corn, switch grass, and woodchips).

5. *See* ENERGY INFO. ADMIN., PETROLEUM BASIC STATISTICS (2007), http://www.eia.doe.gov/basics/quickoil.html (finding that the United States used seventy percent of its oil consumption for transportation purposes).

6. *See* President George W. Bush, *supra* note 2 (noting a reduction of foreign oil from unstable countries); Renewable Fuels Association, Ethanol Facts, http://www.ethanolrfa.org/resource/facts/ (last visited Apr. 9, 2009) (listing and providing links for, the economic, environmental, agricultural and foreign policy benefits of increased ethanol production and use).

7. *See* President George W. Bush, *supra* note 2.

8. *See* Associated Press, *Ahead of the Bell: Bush & Brazil Ethanol*, INT'L BUS. TIMES, Mar. 8, 2007, *available at* http://financesor.com/html/lex/cost/20070310/984.html (noting the cost-effectiveness of sugarcane ethanol, the widespread use of such in Brazil and other such benefits).

an ever-increasing amount of imported oil.[9] Following this discussion, this Note will examine what steps the United States has taken towards developing ethanol and why the real action taken by the U.S. Government has not always matched the rhetorical idealism of its leaders. In the second section, a history of the development of the ethanol fuel industry in Brazil is studied along with the increased energy benefits of sugarcane ethanol produced in Brazil as opposed to corn and soybean ethanol produced in the United States, and the reasons the United States should remove barriers from importing Brazilian ethanol into the United States. In the third section, this Note examines the enormous potential environmental, political, economic, and humanitarian benefits that may come from reducing tariffs, increasing importation of Brazilian, and subsequently other countries' ethanol, as well as offering aid to help underdeveloped countries produce a renewable fuel that will help sustain the U.S. demand for transportation fuel, while promoting healthy economies in countries that are not currently located in the "unstable parts of the world."[10] Brazil offers the United States a unique opportunity to supplement domestic ethanol production, reduce dependence on foreign oil, promote alternative fuel technologies, and reshape the image of the United States in various parts of the world. Now the United States need only have the "[c]ourage to change the things that should be changed."[11]

A. *Are We Addicted?*

An addiction is "the state of being enslaved to a habit or practice or to something that is psychologically or physically habit-forming . . . to such an extent that its cessation causes severe trauma."[12] Can the increasing use of foreign oil for transportation needs, which now accounts for almost sixty percent[13] of the

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9. *See* BUREAU OF TRANSP. STATISTICS, RESEARCH AND INNOVATIVE TECH. ADMIN., NAT'L TRANSP. STATISTICS tbl.4-11M: PASSENGER CAR AND MOTORCYCLE FUEL CONSUMPTION AND TRAVEL (2006), http://www.bts.gov/publications/national_transportation_statistics/2006/html/table_04_11_m.html (finding an increase in fuel consumption of 179% between 1960 and 2005 for passenger cars); *see also* ENERGY INFO. ADMIN., UNITED STATES CRUDE OIL AND PETROLEUM PRODUCTS NET IMPORTS (2008), http://tonto.eia.doe.gov/dnav/pet/hist/mttntus2a.htm [hereinafter ENERGY INFO. ADMIN., NET IMPORTS] (noting the growing number of barrels imported into the United States).

10. President George W. Bush, *supra* note 2.

11. REINHOLD NIEBUHR, *The Serenity Prayer*, *in THE* ESSENTIAL REINHOLD NIEBUHR: SELECTED ESSAYS AND ADDRESSES 251 (Robert McAfee Brown ed., 1986).

12. RANDOM HOUSE WEBSTER'S UNABRIDGED DICTIONARY 23 (2d ed. 2001).

13. *See* Energy Info. Admin., Energy in Brief (2007), http://tonto.eia.doe.gov/energy_in_brief/foreign_oil_dependence.cfm (finding the United States imported about fifty-eight percent of its petroleum in 2007).

documented U.S. oil consumption in 2007,[14] really be considered an addiction? If one considers an addiction to be the disproportionate use or consumption of a product or resource by a country, compared with its population, then the answer is yes.[15] If an addiction is defined as the continued use of a product or resource despite its ever-increasing costs, then the answer is yes.[16] If addiction is defined by continued use of a product or resource, which evidence shows to be causing a number of harms to the person, persons, or their environment, then the answer is yes.[17] This addiction is not a recent phenomenon or a passing trend, but a long observed and increasingly painful problem.[18] Much like a physical addiction, perhaps the first step is merely admitting there is a problem.[19] President George W. Bush took a chance in making such an admission on one of the grandest stages of American political life, when he rose to the pulpit in the well of Congress in January 2006 and announced that Americans have a "serious problem" because "America is addicted to oil."[20] President Bush noted the serious problems with this addiction, primarily that a continued reliance on a petroleum-based economy would have deleterious effects on the environment and national security, as the sources of this imported oil are the "unstable parts of the world," specifically the Middle East.[21] This recognition of the problem is a laudable act requiring a great deal of political courage. President Bush listed a number of ways in which the U.S. government would work towards energy independence. He talked about ideas such as the use of zero-emission coal-fired plants, solar and wind power, and safer nuclear power.[22] However, due to the large amount of oil used by the

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14. CIA, WORLD FACT BOOK, COUNTRY COMPARISONS-OIL-CONSUMPTION (2007), https://www.cia.gov/library/publications/the-world-factbook/rankorder/2174rank.html (showing the United States consumed 20.68 million of the 85.22 million barrels of oil consumed per day in 2007).

15. *Compare id*. (the United States consumes 24.25% of all oil consumed); *with* CIA, WORLD FACT BOOK, COUNTRY COMPARISONS-POPULATION (2009), https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html (the U.S. total population of 307,212,123 makes up only 4.6% of total global population).

16. *See* ENERGY INFO. ADMIN., CUSHING, OK WTI SPOT PRICE FOB (2009), http://tonto.eia.doe.gov/dnav/pet/hist/rwtcM.htm (revealing that oil prices have continued to increase).

17. *See, e.g.*, Jeffrey Kluger, *What Now For Our Feverish Planet?*, TIME, Apr. 9, 2007, at 50 (noting that the United States produced about twenty-five percent of the nearly thirty-two billion tons of global output of carbon dioxide).

18. *See, e.g.*, Cynthia Tucker, Editorial, *America's Oil Addiction Undermines Its Security*, ATLANTA CONST., Nov. 28, 1990, at A9.

19. *See, e.g.*, ALCOHOLICS ANONYMOUS, A BRIEF GUIDE TO ALCOHOLICS ANONYMOUS 13 (1972), http://www.aa.org/en_pdfs/p-42_abriefguidetoaa.pdf.

20. President George W. Bush, *supra* note 2.

21. *Id*.

22. *See id*.

United States for transport fuels,[23] President Bush rightfully noted that the United States must "change how we power our automobiles."[24] Before moving to the current problems facing the United States, it is beneficial to take a brief look at the past to determine just how the United States came to be in such a precarious position.

B. *The Freedom of the Road Leads to the Shackles of Addiction*

When looking at the use of oil for transportation needs, it must naturally begin at the invention and mass production of the automobile. There is a certain amount of irony that the fathers of the American automobile industry, Henry Ford and Charles Kettering of General Motors, had a vision of their cars being fueled by ethanol.[25] In fact, Ford designed his Model T automobile to run on ethanol.[26] However, a number of factors led the United States to move towards the use of petroleum as the primary fuel for its automobiles.

The concept of using ethanol and other alcohol based fuels has often risen or fallen with the attitudes about alcohol in general.[27] In 1862, Congress placed a two dollar per gallon tax on ethanol alcohol, primarily as a way to pay for the American Civil War.[28] This tax was later repealed in the early twentieth century.[29] However, hopes to use ethanol as a fuel source were dashed with the enactment of the Eighteenth Amendment to the Constitution and the onset of prohibition on the production of alcohol.[30] The effective death of alcohol-based fuels during the thirteen years of prohibition[31] was furthered by the abundance of oil compared with the relative need and inexpensive cost during the Great De-

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23. *See* ENERGY INFO. ADMIN., *supra* note 5 (finding that the United States used seventy percent of its oil consumption for transportation).

24. President George W. Bush, *supra* note 2.

25. C. Boyden Gray & Andrew R. Varcoe, *Octane, Clean Air, and Renewable Fuels: A Modest Step Toward Energy Independence*, 10 TEX. REV. L. & POL. 9, 15 (2005).

26. *Id.* at 17.

27. *See, e.g.*, *id.* at 17-18 (discussing how the advent of prohibition led to a decrease and eventual discontinuance of ethanol production).

28. *Id.* at 17 (discussing how the two dollar per gallon tax on all alcohol had a devastating effect on ethanol as a source for energy).

29. Robert Siegel, NPR.org, Ethanol, Once Bypassed, Now Surging Ahead (Feb. 15, 2007) http://www.npr.org/templates/story/story.php?storyId=7426827 (Congress removed the tax on ethanol in 1906).

30. Gray & Varcoe, *supra* note 25, at 17-18 (the Internal Revenue Service told Henry Ford that any distilling of alcohol, even for fuel purposes, was considered an illegal act); *see also* U.S. CONST. amend. XVIII, *repealed by* U.S. CONST. amend. XXI.

31. *See* U.S. CONST. amend. XXI, § 1 (repealing the Eighteenth Amendment in 1933).

pression.[32] Though ethanol was used in limited ways and in limited amounts in both the United States and abroad throughout World War II, the advances in petroleum technologies as well as the abundant supply of oil essentially eliminated any market for fuels other than petroleum and its derivative fuels.[33] These advantages gave oil-based gasoline a competitive edge that led to gasoline being the dominant, if not the only, option for conventional transport fuels.[34] Market dominance, however, will only explain why gasoline is more readily available. It is the lifestyle of the American people that truly turned the United States use of oil-based gasoline into an addiction.

In the latter half of the twentieth century, the suburbanization of the United States and the availability of cars to most families led to the commuter lifestyle now common among the American people.[35] Common sense dictates that once Americans have altered their lifestyles and living arrangements so as to necessitate regular automotive travel, they must then consume increasing amounts of fuel simply to be able to live within the framework of their self-imposed lifestyle. Some may argue that it would simply be easier for Americans to alter, in small ways, how they live within this new framework.[36] However, the

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32. *See generally* JOSEPH DIPARDO, ENERGY INFO. ADMIN., OUTLOOK FOR BIOMASS ETHANOL PRODUCTION AND DEMAND 2 (2002), http://www.eia.doe.gov/oiaf/analysispaper/pdf/biomass.pdf (by the 1940s, the U.S. Ethanol Program "had failed"); ANTHONY RADICH, ENERGY INFO. ADMIN., BIODIESEL PERFORMANCE, COSTS, AND USE 2 (2004), http://www.eia.doe.gov/oiaf/analysispaper/biodisel/ (the early twentieth century saw a surplus of sodium distillate).

33. *See generally* DIPARDO, *supra* note 32; RADICH, *supra* note 32; Energy Information Administration, *supra* note 29 (showing use of ethanol or gasohol in the Midwest over time).

34. Gray & Varcoe, *supra* note 25, at 22 ("Almost no commercial fuel ethanol was available in the United States between the 1940s and the 1970s."); Energy Info. Admin., Kid's Page, *supra* note 29 (virtually no commercial ethanol was available between the 1940s and 1970s).

35. *See, e.g.*, Karen A. Kopecky & Richard M. H. Suen, *Suburbanization and the Automobile* 3 (Economie d'Avant Garde, Research Report No. 6, 2004), *available at* http://www.econ.rochester.edu/Faculty/GreenwoodPapers/SuburbandAuto.pdf (providing an economical and statistical reasoning for suburbanization and the increase in car ownership in the twentieth century); *see also Commuting Times Get Shorter (Believe It or Not)*, MSNBC, Aug. 30, 2006, http://www.msnbc.msn.com/id/14588171 (noting the lengths of various commutes from home to work as well as the percentage of people using alternative methods of transportation such as, carpooling or mass transit).

36. *See generally* Gotriangle, Share the Ride: Carpool!, http://www.gotriangle.org/Carpool/index.html (last visited Apr. 10, 2009) (advocating carpooling as an alternative to reduce carbon dioxide emissions); Kira Marchenese, *Environmental Defense: Bicycling to Work Pays Off*, GREEN OPTIONS, May 9, 2007, *available at* http://kiramarchenese.greenoptions.com/2007/05/09/environmental-defense-bicycling-to-work-pays-off (advocating the environmental and health benefits of biking to work); American Public Transportation Association, The Benefits of Public Transportation – An Overview, http://www.apta.com/research/info/online/ben_overview.cfm (last visited Apr. 10, 2009) (promoting the benefits of increased use of public or mass transit systems in the United States).

growing importation and consumption of gasoline as well as the growing number of cars, underscore a feeling that while there may be programs available to Americans, they are having little effect in helping alleviate the addiction.[37] The problem with these solutions is that they are voluntary and appear to run counter to the individuality that Americans prize. Biking to work, while environmentally healthy, takes away the convenience, pride and accomplishment of having worked and saved to buy a symbol of success in America, an automobile. Carpooling or using public transit intrudes upon the privacy of Americans in their daily routines. It imposes a schedule not of their own making, and decreases the space which they, rightly, wish to preserve as their own.

In light of these innate American beliefs, it has become apparent that the changes must come systemically through social and economic pressures as well as legislatively enacted changes that will break our addiction to foreign oil, without destroying the chosen American lifestyle, by changing how Americans fuel their automobiles. How we, as Americans, have attempted to make these changes will be discussed in the subsequent section.

C. *Idealism and Reality in the U.S. Policies on Ethanol*

President Bush's admission of America's problem[38] is just part of a growing feeling amongst the American people that more must be done to benefit the environment.[39] On top of governmental intervention, it appears that the American public is beginning to express its desire for a solution that will allow them to continue to live in a commuter society. This has put pressure on the automotive industry to make beneficial changes for the safety of the environment.[40] The economic pressures are becoming apparent as well. Thirty-five percent of Americans would significantly cut back on their driving and the use of their cars if gasoline prices rose to three dollars per gallon and sixty-six percent would sig-

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37. BUREAU OF TRANSP. STATISTICS, *supra* note 9 (noting the increase in the number of passenger cars); ENERGY INFO. ADMIN., NET IMPORTS, *supra* note 9.

38. *See* President George W. Bush, *supra* note 2.

39. *See* Memorandum from Global Strategy Group to Yale Ctr. for Envtl. Law & Policy, *supra* note 3, at 2 (noting that seventy percent of those polled believe that President Bush is not doing enough for the environment and should be doing more); Press Release, Zogby International, *supra* note 3 (finding that fifty-five percent of those surveyed wanted increased government funding for alternative fuel research and development).

40. *See* Memorandum from Global Strategy Group to Yale Ctr. for Envtl. Law & Policy, *supra* note 3, at 3 (finding ninety-four percent of those surveyed believed the best way to reduce the U.S. dependence on foreign oil is to increase the fuel mileage in cars and seventy-eight percent of those surveyed would consider buying an alternative fuel like ethanol); Press Release, Zogby International, *supra* note 3 (finding that four in ten of those surveyed believed that "ethanol will be the likely successor to crude oil").

nificantly cut back on their driving if gasoline reached four dollars per gallon.[41] Though a third party may attempt to intervene and break an addiction, it is only at the point when personal responsibility for change is taken that true reform and action will come about. The United States stands at just such a moment now.[42] Increased governmental understanding, a growing pressure on the automotive industry, anxiety over increasing gasoline prices, and the desire to take personal responsibility for the problem will allow the United States to prove the warning of Saudi Oil Minister, Sheik Ahmed Zaki Yamani, who cleverly pointed out that it is fear of rising prices, convenience, and technological advancement that change the way societies operate.[43] But for all the potential in the United States, the populace, the government, nor the automobile industry has been able to bring about any significant change in the U.S. policies regarding ethanol.

Though the automotive industry often touts its environmental credentials with witty and enticing advertising jargon,[44] pressure put on the automotive industry has failed to produce any large scale production of hybrid or flex-fuel vehicles.[45] There are also precious few filling stations that offer true alternative fuels such as pure ethanol or E85 (a fuel made of eighty-five percent ethanol and fifteen percent gasoline); in fact, in 2007, the National Ethanol Vehicle Coalition found that there were only 1,200 filling stations offering E-85[46] though the number appears to have increased to over 1,900 by early 2009.[47] A problem arises

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41. Press Release, Zogby International, *supra* note 3.

42. *See* Memorandum from Global Strategy Group to Yale Ctr. for Envtl. Law & Policy, *supra* note 3, at 1 (finding eighty-one percent of those surveyed believe it is their responsibility to help reduce the impacts of global warming).

43. L. Leon Geyer, Phillip Chong & Bill Hxue, *Ethanol, Biomass, Biofuels and Energy: A Profile and Overview*, 12 Drake J. Agric. L. 61, 77 (2007) (noting that "the Stone Age didn't end because we ran out of stones."quoting Thomas L. Friedman, Op-Ed., *The Energy Harvest*, N.Y. Times, Sept. 15, 2006, at A25).

44. *See, e.g.*, Press Release, General Motors Corp., Biofuels. Here Today. Beyond Tomorrow. (2008), *available at* http://www.gm.com/experience/fuel_economy/e85/brochure_ecofuel.pdf (advocating the use of E-85 ethanol fuel).

45. *Compare* Tim Molloy, *Ethanol Appears to Fuel Profits More Than Conservation*, L.A. TIMES, Jan. 8, 2006, at A-28, *with* BUREAU OF TRANSP. STATISTICS, *supra* note 9 (if 5,000,000 of the 136,358,000 registered cars are E-85 ready, then they make up only 3.7% of the cars on the road). *See also* AM. COAL. FOR ETHANOL, STATUS 07: A STATE BY STATE HANDBOOK 75 (2007), *available at* http://www.ethanol.org/pdf/contentmgmt/ACE120_Status_07_web-1.pdf.

46. Press Release, Nat'l Ethanol Vehicle Coal., E-85 Stations Surpass 1,200 Locations! (May 7, 2007), *available at* http://www.e85fuel.com/news/2007/050707_1200_stations_release.htm.

47. Renewable Fuels Association, E-85, http://www.ethanolrfa.org/resource/e85/ (last visited Apr. 12, 2009) (while the number of E-85 filling stations is admirable, it should be noted that there are approximately 170,000 filling stations in the United States, and filling stations with E-85 make up less than one percent of all filling stations in the United States).

from the fact that most E85 stations are highly concentrated in the upper Midwest and Plains states, where the abundance of corn is grown.[48] This begs that age-old barnyard question, what comes first, the chicken or the egg? Will increased demand for flex-fuel vehicles lead to an increased number of filling stations throughout the United States, or will increased production of ethanol blended fuels such as E85 make it more practical for the transportation fuel addicted citizens of the United States to purchase a flex-fuel vehicle? Answering this question must be left for another day, but regardless of the question, the amount of ethanol available to consumers within the United States must increase and those increases must be created through legislation and trade.

Congress has not been silent with regard to bio-fuels and ethanol. The Energy Tax Act of 1978 imposed an increased tax on automobiles that failed to meet certain fuel efficiency standards, while also exempting fuels that were a blend of gasoline and at least ten percent alcohol from this tax increase.[49] This exemption was extended for over a decade in the Crude OIL Windfall Profit Tax Act of 1980.[50] In 1979, Congress appropriated monies to stimulate domestic commercial production of alternative fuels.[51] New laws continued to change, alter, and reorganize the priorities of the United States; but as the uses of, and desire for alternative fuels increased, a number of laws were enacted that helped lead to the increased use of ethanol as a transportation fuel.[52] However, the 110th Congress has offered identical bills[53] in the House of Representatives and the

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48. E85 Stations, http://e85vehicles.com/e85-stations.htm (last visited Apr. 12, 2009) (depicting states with E-85 stations and the number of stations available). It is important to note that approximately twenty percent of stations offering E-85 (over 370 of the approximately 1900) are located in the State of Minnesota, twelve states have less than ten filling stations with E-85, and nine states have no filling stations offering E-85. *See Id*.; AM. COAL. FOR ETHANOL, *supra* note 45, at 74 (depicting states that have ethanol at commercial pumps and the number of pump stations in each state).

49. Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (codified in scattered sections of 26 U.S.C.).

50. Crude OIL Windfall Profit Tax Act of 1980, Pub. L. No. 96-223, § 102, 94 Stat. 229, 255.

51. Department of the Interior Appropriations Act of 1979, Pub. L. No. 96-126, 93 Stat. 954 (codified in scattered sections of 42 U.S.C.).

52. *See generally* Energy Security Act, Pub. L. No. 96-294, 94 Stat. 611 (1980); Gasohol Competition Act of 1980, Pub. L. No. 96-493, 94 Stat. 2568 (1980) (codified at 15 U.S.C. § 26a); Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776; American Jobs Creation Act of 2004, Pub. L. No. 108-357, § 301, 118 Stat. 1418, 1459-63 (codified as amended at 26 U.S.C. § 6426 (2006) (creating the Volumetric Ethanol Excise Tax); Energy Policy Act of 2005, Pub. L. No. 109-58, §§ 1322, 1342, 119 Stat. 594, 1024-26, 1049-51 (modifying tax credit on ethanol fuels and creating income tax credit to create alternative fuel infrastructure).

53. *See* Biofuels Security Act of 2007, S. 23, 110th Cong. (2007); Biofuels Security Act of 2007, H.R. 559, 110th Cong. (2007).

Senate which aggressively seeks to increase the availability and use of renewable fuels. These bills seek to modify the Clean Air Act, the Energy Policy Act of 1992, the Clayton Act and other federal laws in order to enforce the production and use of renewable fuels, to mandate the installation of renewable fuel pumps at gas stations, and require the creation of more flex-fuel or dual-fueled vehicles.[54] This legislation is by far the most aggressive proposed in an effort to address the U.S. addiction to foreign oil.[55] Unfortunately, this aggressive proposal met sufficient resistance and both bills died in their respective committees.[56] Furthermore, each of these bills remained silent regarding the United States' position on the importation of foreign bio-fuels and alternative fuels to meet the needs of the American public,[57] though it appears that the authors of the bill did not put such information into the bill because they do not believe that attempting to increase importation of ethanol is an important or necessary feature of their plan to increase the use of renewable fuels.[58] This may likely be due to the fact that many of those expressing misgivings about foreign ethanol represent the states with the largest amounts of corn, ethanol production, and ethanol pumps in the United States.[59]

If this legislation is aimed primarily at increasing the production and use of domestic ethanol, then one must ask whether these policies alone can sustain a break from our oil addiction. There are serious deficiencies in policies that look only to production of renewable fuels in the United States to sustain a change in their use. Researchers at the University of Minnesota estimated that if the United States converted the entire domestic corn crop into ethanol, such a change

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54. *See* S. 23; H.R. 559.

55. Press Release, Office of Senator Tim Johnson, Grassley, Johnson Take Steps to Reduce Dependence on Foreign Oil (May 10, 2007), http://johnson.senate.gov/newsroom/record.cfm?id=273968 (referencing a reliance and dependence on foreign oil).

56. *See* S. 23 (referred to the S. Comm. on Commerce, Sci. and Transp.); H.R. 559 (referred to H.R. Subcomm. on Gov't Mgmt., Org., and Procurement).

57. *See* S. 23; H.R. 559.

58. *See* Letter from Sen. Byron Dorgan (D-ND), Sen. Dick Durbin (D-IL), Sen. Tom Harkin (D-IA), Sen. Tim Johnson (D-SD) & Sen. Barack Obama (D-IL) to President George W. Bush (May 9, 2006), *available at* http://harkin.senate.gov/pr/p.cfm?i=255348 (arguing that removing the tariff on foreign ethanol, which would ease the importation of foreign ethanol into U.S. markets, is unnecessary).

59. *Id*. (each Senator is a representative of one of the larger corn and ethanol producing states); *see also* NAT'L AGRIC. STATISTICS SERV., USDA, PROSPECTIVE PLANTINGS 4 (Mar. 30, 2007), *available at* http://usda.mannlib.cornell.edu/usda/nass/ProsPlan//2000s/2007/ProsPlan-03-30-2007.pdf; E85 Stations, *supra* note 48 (showing that the majority of states with E-85 stations exist in Midwestern states); State of Nebraska, Ethanol Facilities' Capacity by State, http://www.neo.ne.gov/statshtml/121.htm (last visited Apr. 12, 2009).; AM. COAL. FOR ETHANOL, *supra* note 45, at 76.

would only replace twelve percent of the U.S. gasoline consumption.[60] The USDA estimates that to meet the increased demand and production for ethanol in the United States, the percentage of corn used for ethanol will have to increase from fourteen percent to thirty-one percent, while the percentage of ethanol would increase from only 3.5% to 7.5% of the total fuel use.[61] Mathematically, if that thirty-one percent of the domestic corn crop used for ethanol became one hundred percent, then domestic consumption of ethanol would still amount to less than one-quarter of the fuel used by the United States. Just as problematic is the fact that the USDA has projected that by 2016 the United States will be producing approximately twelve billion gallons of ethanol, and assuming a continued increase in the rate of production, that figure would still fail to meet the thirty-six billion gallon mandate set by Congress by the year 2022.[62] In the 2006 energy bill, Congress mandated the production of thirty-six billion gallons of ethanol per year by 2022.[63] In a review of the amounts required, compared to the reality of the situation in 2006, it was found that even if the entire domestic corn crop were converted to ethanol, the United States would produce just over twenty-eight billion gallons of ethanol.[64] Therefore, even if the United States were to actually convert the entire corn crop into ethanol every year until 2022, the United States would have to make up an eight billion gallon deficit. It is unlikely that the United States would ever convert the entire corn crop into ethanol because of the demand for corn as a feed supply for livestock and a food supply for humans.[65] Therefore, the United States must either close this deficit through technological advances that lead to increases in the production of ethanol from a finite supply of the domestic corn crop. Or, alternatively, the United States must import ethanol to make up for this deficit. Technology has surely increased the yield of ethanol from each bushel of corn, yet estimates of increases are based on

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60. Deane Morrison, *Ethanol Fuel Presents a Corn-Undrum*, UMNEWS, Sept. 18, 2006, http://www1.umn.edu/umnnews/Feature_Stories/Ethanol_fuel_presents_a_cornundrum.html; Tom Carney, *The Ethanol Option: 'Quick, Easy Route' to Combating Energy Crisis is not Sustainable, Many Say*, NAT'L CATHOLIC REP., Oct. 26, 2007, *available at* http://findarticles.com/p/articles/mi_m1141/is_1_44/ai_n21147678/.

61. Paul C. Westcott, *U.S. Ethanol Expansion Driving Changes Throughout the Agricultural Sector*, AMBER WAVES, Sept. 2007, at 10, 12-13, *available at* http://www.ers.usda.gov/AmberWaves/September07/features/Ethanol.htm.

62. *Id.* at 12-13 (graph of estimated ethanol production in 2016/2017. Projections to the year 2022 are based on projected increases in the eight years between 2006 and 2014 and then adding a similar increase to the eight years between 2014 and 2022).

63. Robert Bryce, *The Great Corn Con*, SLATE, June 26, 2007, http://www.slate.com/id/2169124/index.html.

64. *Id.*

65. NAT'L CORN GROWERS ASS'N, MORE CORN ON FEWER ACRES 1 (2005) (on file with author) (finding that only fifteen percent of the corn crop was used for ethanol production).

new technologies producing a one hundred percent success rate, and even these numbers will not meet the demand as ethanol becomes more prevalent throughout the United States.[66] If the United States is unable to meet the mandates of Congress through increased technology or increased consumption of the corn crop for ethanol production, then the last way to meet and hopefully increase the use of ethanol is to import ethanol.

The United States imported over six hundred fifty-three million gallons of ethanol in 2006 and four hundred fifty million gallons in 2007.[67] Despite the drop in imports in 2007, both amounts are dramatic increases from the mere one hundred thirty-five million gallons imported in 2005.[68] In 2007, imports accounted for just over six percent of the total ethanol demand in the United States[69] and because imports from Brazil accounted for nearly two-thirds of that percentage,[70] the argument put forth in this Note may, in essence, be a moot point. As noted above, there will be a continuing deficit to meet the mandates of Congress even if all of the corn crops are diverted to ethanol production, and technology increases the amount of corn that can be planted in a given area as well as the yield from each bushel to the highest level. So, what is the United States to do? The United States must look to expand developing markets and remove tariffs and restrictions from the largest markets. The United States policy regarding the importation of ethanol would appear to be one of unlimited free trade and the triumph of the free market, if not for three specific aspects of its policy. First is the creation of the Volumetric Ethanol Excise Tax Credit (VEETC), which offers a fifty-one cent per gallon tax refund for every gallon of ethanol that is blended with gasoline.[71] Second, the imposition of the two and a half percent ad valorem tax on imported ethanol as well as the fifty-four cent per

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66. *See, e.g.*, NAT'L CORN GROWERS ASS'N, HOW MUCH ETHANOL CAN COME FROM CORN? 3-4 (2007), http://www.cie.us/documents/HowMuchEthanol.pdf (noting a projected theoretical increase of thirty-four percent in ethanol production per acre of corn from the 2004 yield to the 2014 projected yield, assuming one hundred percent fiber conversion and one hundred percent use of high fermentable hybrids. Note also the projected ethanol yield from crop year 2015/2016 is less than one-half of the thirty-six billion gallon mandate).

67. Renewable Fuels Association, Statistics: U.S. Fuel Ethanol Demand, http://www.ethanolrfa.org/industry/statistics/ (last visited Apr. 14, 2009).

68. *Id*.

69. *See id*. (an estimated 450 million gallons of ethanol is imported to meet a total demand of 6.84 billion gallons).

70. *See* Renewable Fuels Association, Statistics: U.S. Fuel Ethanol Imports by Country, http://www.ethanolrfa.org/industry/statistics/ (last visited Apr. 14, 2009) (showing Brazilian imports of ethanol accounted for 433.7 million of the 653.3 million gallons that were imported in 2006).

71. 26 U.S.C. § 6426 (2006).

gallon tariff on imported ethanol from non-Caribbean Basin countries.[72] Finally, the creation of an exemption from both the aforementioned tax increases for ethanol that is imported from specific signatory countries of the Caribbean Basin Initiative (CBI), so long as those imports do not exceed seven percent of the total domestic production.[73] These three developments in trade policy have put the United States in an unenviable position of defending protectionist policies while denying the consumer the benefit of the free market.

The Volumetric Ethanol Excise Tax Credit (VEETC) or the "blender's credit" was a part of the American Job Creations Act of 2004 and was implemented to streamline the manner in which the government collects taxes and distributes tax refunds for ethanol producers.[74] VEETC also provided increased opportunities for ethanol in non-taxable markets.[75] This tax refund made the option of producing ethanol-blended gasoline more cost-effective for petroleum companies and reduced the costs of ethanol-blended gasoline for the consumers.[76] Logically, such a tax benefit would increase the demand for all ethanol, foreign and domestic, especially from the largest ethanol producing countries, such as Brazil.[77]

Such demand, however, is blunted by taxes and tariffs placed on foreign ethanol. Though the United States has one of the lowest ad valorem tariffs on foreign ethanol of any country in the world,[78] but the United States has also added a secondary tariff of fifty-four cents per gallon on all imported ethanol.[79] This tariff was added to keep U.S. tax dollars from further subsidizing foreign ethanol which had already been subsidized by its mother countries.[80] In combination, these two taxes neutralize any of the benefits of the fifty-one cent per gallon tax

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72. *See* American Coalition for Ethanol, Federal Legislation: Ethanol Trade Policy, http://www.ethanol.org/index.php?id=78&parentid=26 (last visited Apr. 14, 2009).

73. *See id*.

74. Renewable Fuels Association, VEETC, http://www.ethanolrfa.org/resource/veetc/ (last visited Apr. 14, 2009).

75. *Id*.

76. American Coalition for Ethanol, Federal Legislation: Volumetric Ethanol Excise Tax Credit (VEETC) - The "Blenders' Credit", http://www.ethanol.org/index.php?id=78& parentid=26 (last visited Apr. 14, 2009).

77. *See generally* Renewable Fuels Association, Statistics: Annual World Ethanol Production by Country, http://www.ethanolrfa.org/industry/statistics/ (last visited Apr. 14, 2009) (showing Brazil was the leading producer of ethanol until 2005, when the United States overtook them in gallons produced per year).

78. American Coalition for Ethanol, *supra* note 72 (explaining the United States places a 2.5% ad valorem tax on foreign ethanol).

79. *Id*.

80. *Id*. (showing the United States places a 14.27 cent per liter tax on ethanol which equals fifty-four cent per gallon tax).

refund for ethanol blended gasoline.[81] Therefore, Brazil's ability to import ethanol into the United States is undermined by policies that favor the blending of domestic ethanol as opposed to foreign ethanol. Such disincentives are the real reasons why only a small amount of ethanol is imported from Brazil, despite the increasing ethanol deficit in the United States and Brazil's increasing ethanol surplus.[82] The United States appears to be trying to rectify this deficit by importing duty-free ethanol from a number of countries through the CBI and the Andean Trade Preference Act (ATPA).[83] Each of these programs was developed to help stimulate the economies of these countries, help move their populations out of poverty, and stem the flow of drug trafficking that arises in these impoverished nations.[84] Noble as the ambitions for these programs are, they are inescapably lacking because of the caps placed on the amount that can be imported duty-free,[85] the small amount of ethanol imported from these countries,[86] and the fact that these countries do not produce their own ethanol as much as they import Brazilian ethanol for refinement before exporting it to the United States.[87] The reality of the situation is that even if these programs are effective in fostering

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81. *Id*.

82. *See, e.g.*, Adam Dean, *Unethical Ethanol Tariff*, POL'Y INNOVATIONS, Apr. 4, 2007, http://www.policyinnovations.org/ideas/briefings/data/ethanol (finding that tariffs have limited the access to U.S. markets for Brazilian ethanol); FOOD & AGRIC. POLICY RESEARCH INST., U.S. AND WORLD AGRICULTURAL OUTLOOK: ETHANOL TABLES (2006), *available at* http://www.fapri.org/outlook2006/tables/14EthanolTables.pdf (noting the demand in the United States for ethanol outpaces the U.S. projected production while the surplus in Brazil continues to grow).

83. Andean Trade Preference Act, 19 U.S.C. § 3202(b) (2006) (allowing Peru, Colombia, Bolivia and Ecuador to import items duty-free); Caribbean Basin Economic Recovery Act, 19 U.S.C. § 2702(b) (2006) (listing the nineteen countries who have duty-free access to U.S. markets); American Coalition for Ethanol, *supra* note 72 (finding that the CBI and ATPA allows the listed countries to import duty-free ethanol into U.S. markets).

84. Office of the United States Trade Representative, Andean Trade Preference Act, http://www.ustr.gov/Trade_Development/Preference_Programs/ATPA/Section_Index.html (last visited Apr. 4, 2009); BRENT D. YACOBUCCI, CONG. RESEARCH SERV., ETHANOL IMPORTS AND THE CARIBBEAN BASIN INITIATIVE 3-4 (2006), *available at* http://www.nationalaglawcenter.org/assets/crs/RS21930.pdf.

85. *See* American Coalition for Ethanol, *supra* note 72 (countries in the CBI can account for only seven percent of the total ethanol production in the United States, while still remaining duty-free).

86. YACOBUCCI, *supra* note 84, at 2-3 (finding that imports from Brazil were greater than all other CBI countries); JOEL SEVERINGHAUS, IOWA FARM BUREAU, WHY WE IMPORT BRAZILIAN ETHANOL 2 (2005) http://www.iowafarmbureau.com/programs/commodity/information/pdf/Trade%20Matters%20column%20050714%20Brazilian%20ethanol.pdf (listing the small amounts of ethanol imported from Jamaica, Costa Rica, and El Salvador).

87. *See* YACOBUCCI, *supra* note 84, at 4 (finding that in many cases the ethanol, in hydrous form, was imported to CBI countries from Brazil).

developing economies in the CBI countries, these countries are still only allowed to import duty-free ethanol up to the seven percent cap.[88] If the programs and initiatives that the United States has implemented to increase ethanol production throughout the Western Hemisphere have operated as processing stations for Brazilian ethanol for twenty-five years,[89] then the simplest argument is that the United States should remove the tariffs and taxes from larger foreign ethanol producers and embrace the benefits of free trade with countries, such as Brazil, that are aching to increase the flow of ethanol, technology, and know-how into the United States and throughout the world.[90] Before discussing the benefits of such a plan, this Note will look at the history of the ethanol industry in Brazil and how it came to be a dominant producer of ethanol.

II. BRAZIL'S SWEET HISTORY WITH ETHANOL

Brazil's first foray into the ethanol industry came after the 1973 oil shock, when in 1975 the Brazilian National Alcohol Program, or Proalcool, was created through official decree to meet the needs of the domestic and foreign markets for an alternative fuel, based on sugarcane ethanol.[91] At the time, Brazil was controlled by a military dictatorship which had great influence with regard to Brazil's economy.[92] The first step taken by the government was to install mandates, not dissimilar to those found in the Bio-fuels Security Act,[93] promoting the production of ethanol to the maximum extent allowed for current vehicles and engines.[94] Further, the government took a number of steps to promote ethanol by

88. American Coalition for Ethanol, *supra* note 72.

89. Office of the United States Trade Representative, Caribbean Basin Initiative, http://www.ustr.gov/Trade_Development/Preference_Programs/CBI/Section_Index.html?ht= (last visited Apr. 14, 2009) (explaining the CBI originally began as the Caribbean Basin Economic Recovery Act which was enacted in 1983).

90. Memorandum of Understanding Between the United States and Brazil to Advance Cooperation on Biofuels, (Mar. 9, 2007) *available at* http://my.barackobama.com/page/community/post/ton/gGxjrv (noting the desire of Brazil and the United States to combine efforts to spread technology, bio-fuels and economic growth); Michel Egger, *Developing Countries Keen to Exploit Comparative Advantages: Trade Disputes Sure to Come*, ALLIANCE SUD NEWS, Dec. 2006/Jan. 2007, at 4, *available at* http://www.alliancesud.ch/english/files/D_PnAs49-50.pdf (quoting Brazilian Agriculture Minister Roberto Rodrigues's comment that Brazil "want[s] to sell not litres but rivers of ethanol!").

91. David Sandalow, *Ethanol: Lessons from Brazil*, *in* A HIGH GROWTH STRATEGY FOR ETHANOL 67, 68 (2006), *available at* http://www.aspeninstitute.org/sites/default/files/content/docs/\energy%20and%20environment%20program/FINALEthanolText.pdf.

92. *Id.*

93. *See* Biofuels Security Act of 2007, S. 23, 110th Cong. § 101 (2007); Biofuels Security Act of 2007, H.R. 559, 110th Cong. § 101 (2007).

94. Sandalow, *supra* note 91.

offering "credit guarantees and low-interest loans for [the] construction of new refineries," setting the price of gasoline to allow ethanol to compete in the market, having the state-owned oil company, Petrobas, invest in the distribution of ethanol throughout the country to make it available to all and, finally, creating a marketing program which launched the slogan, "Let's unite, make alcohol."[95] In the following years, ethanol production increased more than five hundred percent.[96] Once ethanol had become prevalent, the Brazilian government sought to increase the availability of ethanol capable vehicles and, in a manner similar to that found in the Bio-Fuels Security Act of 2007,[97] signed agreements with car companies such as Fiat, Toyota, and General Motors to create assembly lines for the production of automobiles that could run on one hundred percent ethanol.[98] Further, the government offered incentives to taxi drivers to convert their automobiles to one hundred percent ethanol.[99] With the aid of government pricing policies and a World Bank loan, ethanol flourished in Brazil, and by the mid-1980s ethanol made up almost half of the liquid fuel supply in Brazil.[100] It was not until 1985, when the price of oil began dropping, thus making oil more economically viable than ethanol for transportation fuels, that Brazil's ethanol industry experienced serious problems.[101] Brazil faced its own internal economic problems that led to a reduction or removal of subsidies on loans and incentives for refineries, as well as a weakening support for ethanol programs from trading companies.[102] By the late 1980s ethanol production had stagnated, even begun to drop, while "sugar prices rose and export markets for refined sugar became more profitable."[103] In an odd irony, while ethanol production became stagnant, automakers continued to make automobiles that ran on ethanol, which required Brazil to begin to import ethanol to meet demand.[104] Throughout the 1990s, the price of oil remained low and the ethanol industry lacked the strong governmental support it had previously enjoyed, though the government did continue to require that all gasoline sold in Brazil be blended with at least twenty percent ethanol.[105] In the late 1990s, auto-manufacturers and policymakers took note of the emis-

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95. *Id*.
96. *Id*.
97. See Biofuels Security Act of 2007, S. 23, 110th Cong. § 201 (2007); Biofuels Security Act of 2007, H.R. 559, 110th Cong. § 201 (2007).
98. Sandalow, *supra* note 91, at 68-69.
99. *Id*. at 69.
100. *Id*.
101. *Id*.
102. *Id*.
103. *Id*.
104. *Id*.
105. *Id*. at 70.

sions standards being debated in the United States and lobbied the Brazilian government to incentivize the production of Flex-Fuel Vehicles (FFV) which would allow an automobile to run on various blends of gasoline and ethanol.[106] The Brazilian government "agreed to treat flex-fuel vehicles as ethanol-fueled" and gave them preferential tax treatment in 2001.[107] The number of flex-fuel automobiles in Brazil has increased from less than one percent in 2001 to over seventy percent by 2006[108] and, in 2007, eighty-six percent of all automobiles sold in Brazil were ethanol enabled.[109] Ethanol, despite increasing sugar prices, has continued to account for forty percent of transportation fuels; the Brazilian government, to offset increasing costs, reduced the mandated minimum blend of ethanol, from twenty-five to twenty percent, in all fuels.[110] With this continued success and growing surplus of ethanol, Brazil has continued to try to remove trade barriers and expand its global market, especially in the United States.[111] Despite calls from President George W. Bush and others to remove or reduce the tariff, there are also strong calls to maintain the status quo, and to even extend the CBI into the foreseeable future.[112] At this time in history, very little has changed with regard to the importation of foreign ethanol. With Congress attempting to maintain the status quo one must ask, why should the United States make changes in its policy for the benefit of Brazil and its sugarcane ethanol industry?

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106. *Id.*

107. *Id.*

108. *Id.*

109. Jim Lane, *Flex-Fuel Vehicles Account for 86 Percent of 2007 Brazilian Car Sales; 4.6 Million Flex-Fuel Cars on Road*, BIOFUELS DIG., Jan. 9, 2008, http://biofuelsdigest.com/blog2/2008/01/09/flex-fuel-vehicles-account-for-86-percent-of-2007-brazilian-car-sales-46-million-flex-fuel-cars-on-road/.

110. Sandalow, *supra* note 91, at 70; *see* David J. Lynch, *Brazil Hopes to Build on its Ethanol Success*, USA TODAY, Mar. 29, 2006, at 1B.

111. *See, e.g.*, Alan Clendenning, *U.S. Takes Backseat to Brazil in Ethanol Production—Cheaper Fuel from Sugar Cane*, THE N.J. RECORD, July 12, 2007, at A15, *available at* 2007 WLNR 13206948 (noting the recent U.S. agreement with Brazil to promote production throughout Latin America and the Caribbean); *see also* FOOD & AGRIC. POLICY RESEARCH INST., *supra* note 82 (showing projected surplus of ethanol from Brazilian market).

112. *See* H. Josef Hebert, *Bush Backs Ethanol Import Tax Reduction- Lawmakers: Change Will be a Mistake*, GRAND FORKS HERALD, May 15, 2006, *available at* 2006 WLNR 8298207; Ethanol Tariff Extension and Caribbean Basin Initiative Investigation Act, S. 1106, 110th Cong. (2007) (legislation introduced by Sen. Thune (R-S.D.) to extend the ethanol tariff until 2011).

III. FOR ONCE, SWEETS ARE BETTER FOR US THAN VEGETABLES

Yes, it is the sad truth that ethanol created from Brazilian sugarcane has a number of advantages over American corn. Perhaps the best way to describe all the benefits of Brazilian ethanol from sugarcane is to contrast the production process, the economics of production and distribution, the environmental effects, and, finally, the comparative costs of corn ethanol and imported sugarcane ethanol to consumers. Further, a partnership between the United States and Brazil to move towards a reduced tariff on, or tariff free trading of ethanol offers not only very real benefits, but the possibility to help change many countries for the better.

A. *The Real Benefits of Sugarcane Ethanol*

There are two methods for turning corn into ethanol, the dry milling and wet milling process.[113] Without going too deep into the minutia of the process, ethanol, from corn or grains in America, is produced by harvesting the grain and other starch-based parts of corn, while leaving behind the cornstalks.[114] To convert this starch and grain into sugar, there are a number of steps, but the grain and starches are essentially separated from the oils and other parts of the corn.[115] These starches are then milled down and have an enzyme applied to them which breaks down the starches into sugars.[116] The final step is the application of heat, primarily through the use of fossil fuels, then the fermentation of the sugars into alcohol, and a distillation and purification process until the alcohol is pure enough to use for transportation fuel.[117]

In contrast, ethanol from sugarcane is already a sugar and requires no step to remove starches and oil from sugar before it is ready for ethanol production; the cane stalk is harvested and crushed or soaked to remove the sugars from the cane stalk, or bagasse.[118] The sugar is then fermented through a heat source, typically using the energy in the bagasse as fuel, to ferment the sugars to alcohol.[119] The final step is similar to the corn process that distills and purifies the

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113. Renewable Fuels Association, How Ethanol is Made, http://www.ethanolrfa.org/resource/made/ (last visited Apr. 14, 2009) (explaining both the wet and dry milling method of producing ethanol).

114. INT'L ENERGY AGENCY, BIOFUELS FOR TRANSPORT: AN INTERNATIONAL PERSPECTIVE 35 fig.2.1 (2004), http://www.iea.org/textbase/nppdf/free/2004/biofuels2004.pdf.

115. *Id.*

116. *Id.*

117. *Id*.

118. *Id*. at 36.

119. *Id*. at 35 fig. 2.1.

alcohol to the necessary purity to make it usable for transportation fuel.[120] Though the processes may seem similar, it is the benefits of sugarcane ethanol, found throughout the entire process, from the harvest to the "fuel cycle" or the "wells to wheels" process that makes sugarcane the more beneficial of the two types of ethanol fuel.[121] First, the production process is shorter because sugarcane ethanol is already in sugar form and requires fewer steps to get to the ethanol process.[122] Second, the stalk from sugarcane, or bagasse, is used to create the electricity necessary to refine the ethanol, often making the refineries in Brazil energy independent from fossil fuels, and in some cases, these refineries export power to the electrical grid.[123] Further, the amount of greenhouse gases reduced through the use and production of sugarcane ethanol production is, on average, greater than ethanol created by corn.[124] One of the main arguments against using ethanol has been the view that producing a gallon of ethanol actually requires more energy than a gallon ethanol would put out; this argument, while false, points to another benefit of sugarcane ethanol as the ratio of energy put out to energy put in to make corn ethanol has ranged from 1.38:1 to 2.51:1 where as the ratio for sugarcane ethanol is between 8:3 and 10:2.[125] Therefore, while corn ethanol does have a positive energy output, compared to the energies it takes to create it, that difference is noticeably smaller, and much closer to a one to one ratio, than is the energy output of sugarcane ethanol. On top of the production, energy and environmental benefits, Brazil is in a position to inexpensively produce sugarcane ethanol because of lower labor costs, a strong growing season, and the energy efficiency of refineries that are powered by bagasse.[126] As such,

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120. *Id.*

121. *See id*. at 51 (discussing the fuel cycle).

122. *See id*. at 36.

123. *See id*. at 60; Jim Lane, *Brazil's Sugar Producers Say that Bagasse Could Supply up to 15 percent of Brazilian Electric Needs*, BIOFUELS DIG., Jan. 29, 2008, http://www.biofuelsdigest.com/blog2/2008/01/29/brazils-sugar-producers-say-that-bagasse-could-supply-up-to-15-percent-of-brazilian-electric-needs/; Thomas L. Friedman, Op-Ed., *The Energy Harvest*, N.Y. TIMES, Sept. 15, 2006, at A25.

124. *Compare* INT'L ENERGY AGENCY, *supra* note 114, at 53, *with* Int'l Energy Agency, *supra* note 114 at 61 (finding that while corn based ethanol reduces greenhouse gases, ranging from an increase of thirty percent to a decrease of thirty-eight percent, greenhouse gases such as carbon dioxide are reduced by ninety-two percent through the production and use of sugarcane ethanol).

125. DAVID LORENZ & DAVID MORRIS, INST. FOR LOCAL-SELF RELIANCE, HOW MUCH ENERGY DOES IT TAKE TO MAKE A GALLON OF ETHANOL? 2 (1995), http://www.ethanol.org/pdf/contentmgmt/ILSR_energy_balance.pdf; *see also* Int'l Energy Agency, *supra* note 114 at 60 (finding that the energy input to make sugarcane ethanol is between six and eight times as efficient as corn ethanol).

126. *See* EDWARD SMEETS ET AL., SUSTAINABILITY OF BRAZILIAN BIO-ETHANOL 62-63 (2006), http://www.bioenergytrade.org/downloads/sustainabilityofbrazilianbioethanol.pdf (noting the low wages of workers in the sugarcane production); *see also* Int'l Energy Agency, *supra* note

the costs of ethanol at the pump have become competitive with, if not cheaper than gasoline in Brazil, and Brazilian ethanol is less expensive than ethanol produced in the United States.[127] Even in the United States, a gallon of ethanol, where it can be found, is less expensive than a gallon of gasoline, with or without the fifty-one cent per gallon tax refund and without projecting the price with the mass importation of tariff free ethanol from Brazil.[128]

B. *The Thoughtful Probability and a Few Hopeful Possibilities*

The benefits of sugarcane ethanol are apparent for Brazil. However, what the free trade of ethanol between the United States and Brazil means for the United States and the rest of the world is still speculation. The speculation has, save a few critics of the removal of the tariff,[129] been hopeful, beneficial and optimistic for the United States and countries around the world.

With respect to the United States, two Iowa State University scientists found that trade liberalization and the removal of the tariffs on Brazilian ethanol would lead to a thirty cent per gallon increase in the price of ethanol, but would also increase the use of ethanol in the United States and the increase of imports from Brazil, while decreasing the price of ethanol in the United States by over thirteen percent.[130] This would also allow the United States to move towards the use of a gasoline blend that is sold with five percent ethanol throughout the United States.[131] Such an increase would reduce the use of foreign oil by over six

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114 at 60 (noting the strong environment to grow sugarcane and the use of bagasse to offset costs to production); Bryce G. Hoffman, *Ethanol Nation: Brazil Finds Energy Freedom with Sugar-Based Fuel*, DETROIT NEWS, Aug. 23, 2007, *available at* http://www.detnews.com/apps/pbcs.dll/article?AID=/20070823/AUTO01/708230405.

127. *See* Hoffman, *supra* note 126 (finding ethanol in Brazil costs approximately seventy-five cents per liter, less than gasoline which costs $1.20 a liter or when converted to gallons, approximately $2.89 per gallon of ethanol and $4.62 per gallon of gasoline); Amani Elobeid & Simla Tokgoz, *Removal of U.S. Ethanol Domestic and Trade Distortions: Impact on U.S. and Brazilian Ethanol Markets* 8 (Ctr. for Agric. & Rural Dev., Working Paper No. 06-WP 427, 2006), *available at* http://www.card.iastate.edu/publications/DBS/PDFFiles/06wp427.pdf.

128. *Compare* Axxis Petroleum, State Average Ethanol Rack Prices, http://www.axxispetro.com/ace.shtml (last visited Apr. 14, 2009) (showing the average price of ethanol in the Midwest on March 20, 2009 ranged from $1.64 to $1.79 a gallon), *with* GasBuddy.com, Historical Price Charts, http://www.gasbuddy.com/gb_retail_price_chart.aspx?time=24 (last visited Apr. 4, 2009) (showing average gas price in the United States on March 20, 2009 was $1.94 per gallon. Such prices do not take into account what the price would be with the possible purchase of ethanol tariff-free from Brazil).

129. *See, e.g.*, Press Release, Senator Chuck Grassley, Ethanol Import Tariff (Jan. 30, 2008), *available at* http://grassley.senate.gov/news/Article.cfm?customel_datapageID_1502=6869.

130. Elobeid & Tokgoz, *supra* note 127, at 22.

131. *Id*.

hundred thousand barrels of oil a day.[132] Though this study makes a fine scientific point, it is also merely a scientific study. It cannot account for the realities of the world that have come about since 2006, such as the Memorandum of Understanding between the United States and Brazil, which seeks to combine the political, economic, environmental and technological powers of both countries with regard to bio-fuels.[133] Imagine if the United States embraced this understanding, removed the tariffs and allowed the Brazilian economy to expand and increasingly supplement domestic ethanol production as a transportation fuel source. Imagine if new trade agreements were reached with regard to the sharing of technology, the spread of such technology and farming techniques to other South American, Central American, and Caribbean countries that are capable of producing larger amounts of sugarcane ethanol. Imagine, further, that the United States and Brazil combine to export this ethanol based economy to countries that are capable of producing large amounts of sugar cane.[134] What if India, a country whose increasing population and energy needs have created global concern,[135] moves to increase the use of ethanol and offset their growing energy needs? What if Mexico, a country whose own expanding economy may help solve the immigration debate in the United States,[136] begins to plant increasing numbers of sugarcane fields, or creates more refineries to refine greater amounts ethanol, and strengthens their own economy thereby offering their citizens increased job opportunities and a chance at a better life? What if Colombia, a country at the center of the United States drug war, [137] changed the hundreds of thousands of acres of coca[138] that the United States has tried to eradicate for decades, into hundreds of thousands of acres of sugarcane that the United States would have a strong

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132. *See* ENERGY INFO. ADMIN., NET IMPORTS, *supra* note 9 (the United States was a net importer of 12.39 million barrels of oil per day in 2006; if five percent of this was replaced by ethanol, the importation of oil drops to 11.77 million barrels a day).

133. Memorandum of Understanding Between the United States and Brazil to Advance Cooperation on Biofuels, *supra* note 90.

134. *See* Statistics Div., U.N. Food & Agric. Org., Major Food and Agricultural Commodities and Producers: Sugar Cane 2005, http://www.fao.org/es/ess/top/commodity.html?lang=en&item=156&year=2005 (last visited Apr. 4, 2009) (listing twenty countries that produce large amounts of sugar cane).

135. *See* Carin Zissis, *India's Energy Crunch*, BACKGROUNDER, Oct. 23, 2007, http://www.cfr.org/publication/12200/indias_energy_crunch.html.

136. Monisha Bansal, *Mexican Economy Seen as Heart of Immigration Problem*, CNSNEWS.COM, Jan. 30, 2007, http://www.cnsnews.com/public/Content/Article.aspx?rsrcid=7293.

137. *See generally* Timothy Pratt, *The Drug War's Southern Front: Columbia, Cocaine, and U.S. Foreign Policy*, REASON, Apr. 2000, *available at* http://www.reason.com/news/show/27667.html.

138. *See generally* Joel Brinkley, *Anti-Drug Gains in Columbia Don't Reduce Flow to U.S.*, N.Y. TIMES, Apr. 28, 2005, at A3 (noting the hundreds of thousands of acres of coca plants the United States has attempted to eradicate in years past).

interest in protecting and promoting? An even more idealistic aspiration would be the possibility that the United States, along with Brazil, through trade and technological agreements, could aid countries in Africa, such as Nigeria, South Africa, and other sub-Saharan African countries to develop stable, agrarian economies, based on a newly developed sugarcane crop and ethanol refining capabilities.[139] While mere speculation at this point, the United States has the capability, capacity, economic and political strength to accomplish such an agenda. What the United States lacks at this point is the political will to make this change and the economic bravery to take this initial step of removing the tariffs from the United States.[140] Until that point, Americans are merely left to wonder, "what if?"

IV. CONCLUSION

The United States has invested deeply in domestic ethanol. The United States has taken small steps to spread that investment into the countries involved in the CBI and ATPA. However, the United States is missing an opportunity to truly break its addiction to foreign oil by not removing the tariffs and restrictions from the largest producer of sugarcane ethanol: a type of ethanol that is less expensive to produce, creates by-products that can be used to fuel refineries, has a shorter production process than corn ethanol, reduces greenhouse gases in greater amounts, has a net energy gain six to eight times greater than corn ethanol. In Brazil, the United States has an untapped partner that could not only free the United States from a substantial addiction, but could also act as a partner in creating new economies, fostering developing economies, repairing the image of a greedy, arrogant United States, and helping ease the burden of the world from petroleum. Even if the United States is not willing to endure the labor, take on the financial burden or invest the time to make this a worldwide change, then the United States can surely take the step of helping itself and ending a tariff that is at best protectionist and at worst a rebuke to the free market ideals. The United States has admitted it has a problem, now it must have the strength to take the next step and change what it is capable of changing.

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139. *See generally* Marianne Osterkorn, *Ethanol in Africa*, ECOWORLD, July 7, 2006, http://www.ecoworld.com/home/articles2.cfm?tid=389; Kimani Chege, *Biofuel: Africa's New Oil?*, SCIDEV.NET, Dec. 5, 2007, http://www.scidev.net/content/features/eng/biofuel-africas-new-oil.cfm.

140. *See* Bill Lambrecht, *Political Road Gets Rockier for Ethanol After a Run of Victories in Congress, New Adversaries Put the Heat On*, ST. LOUIS POST-DISPATCH, July 22, 2007, at A1 (noting that an amendment to remove the fifty-four cent tariff was crushed).