U.S. Ethanol Policy and Trade

Office of Industries

Industries Analysis Seminar Series

May 11, 2011

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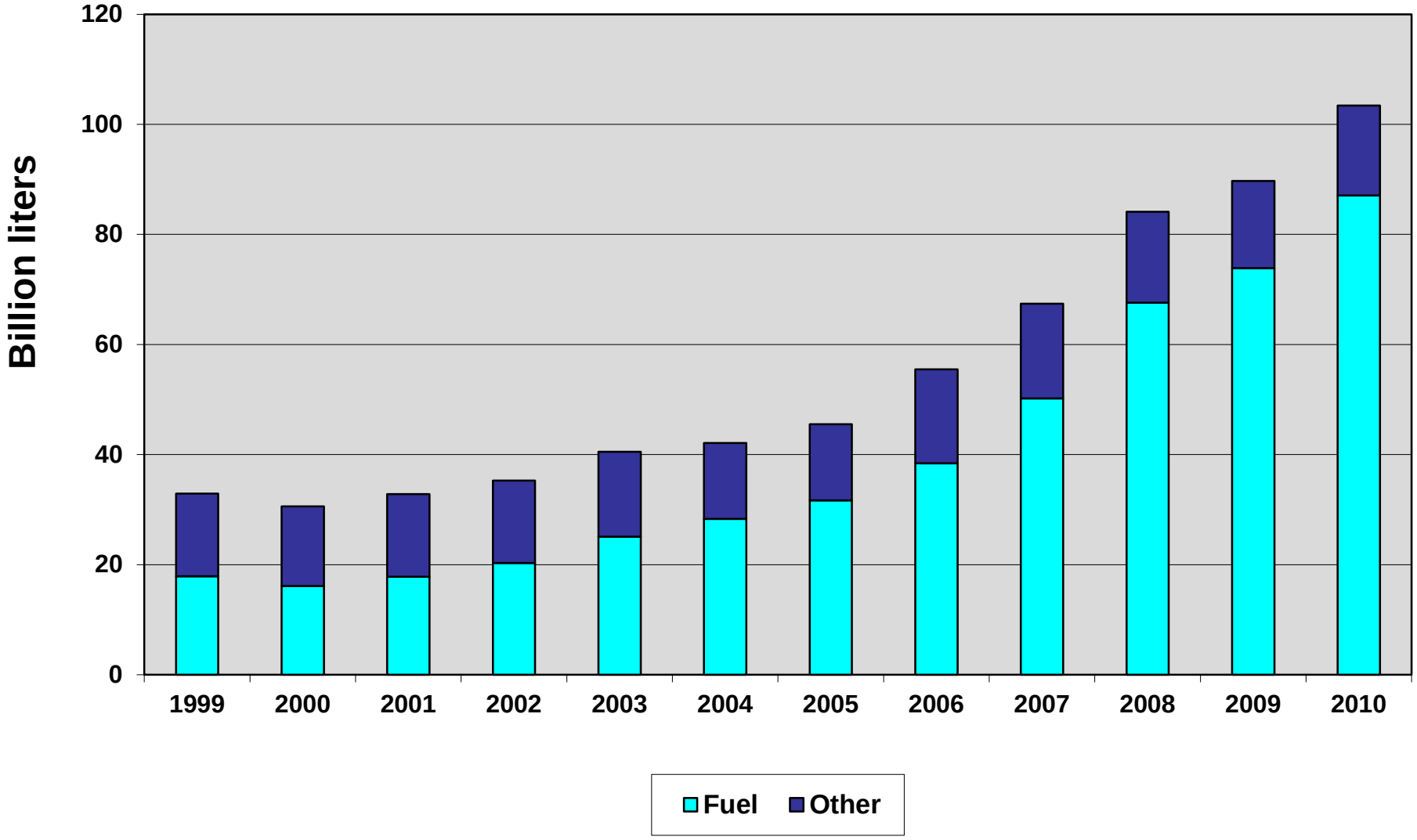
Road Map

- **Global and U.S. market overview**
- **Global policy overview**
- **U.S. policy**
- **Current issues**
- **Prospects**

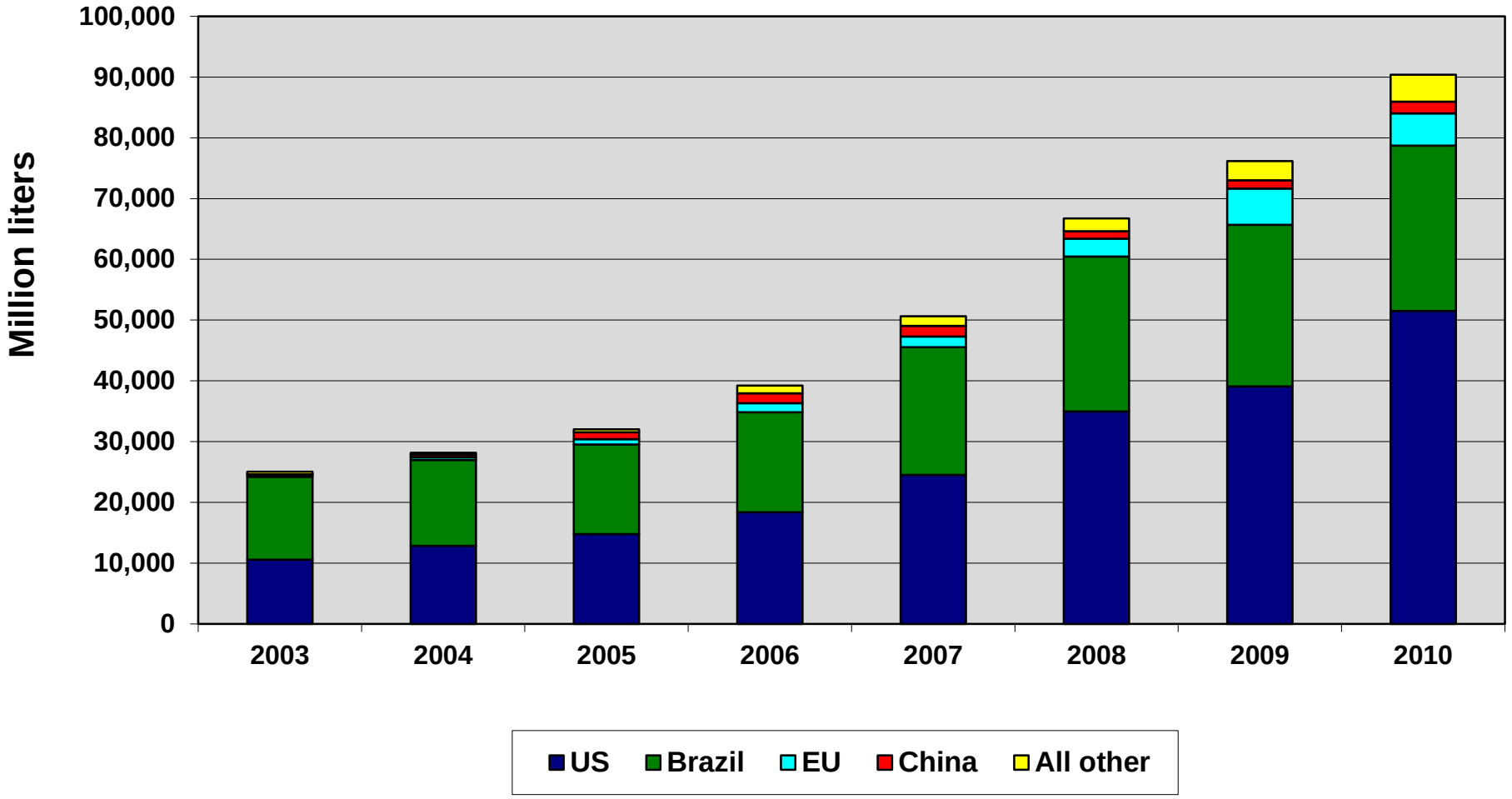
Global and U.S. Market Overview

Global ethanol production, by type, 1999-2010



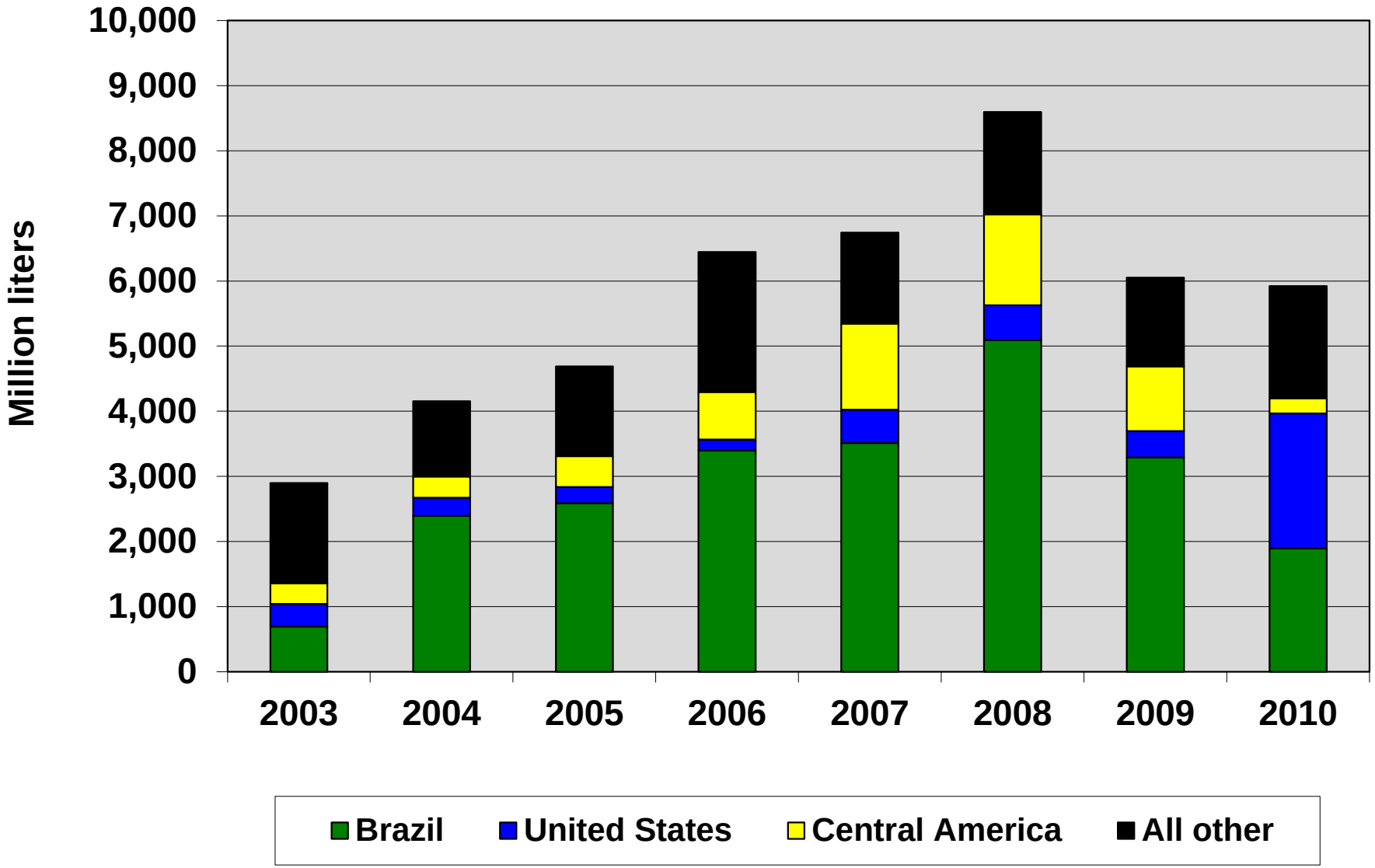
Source: LMC International.

Global fuel ethanol production, by major sources, 2003-2010



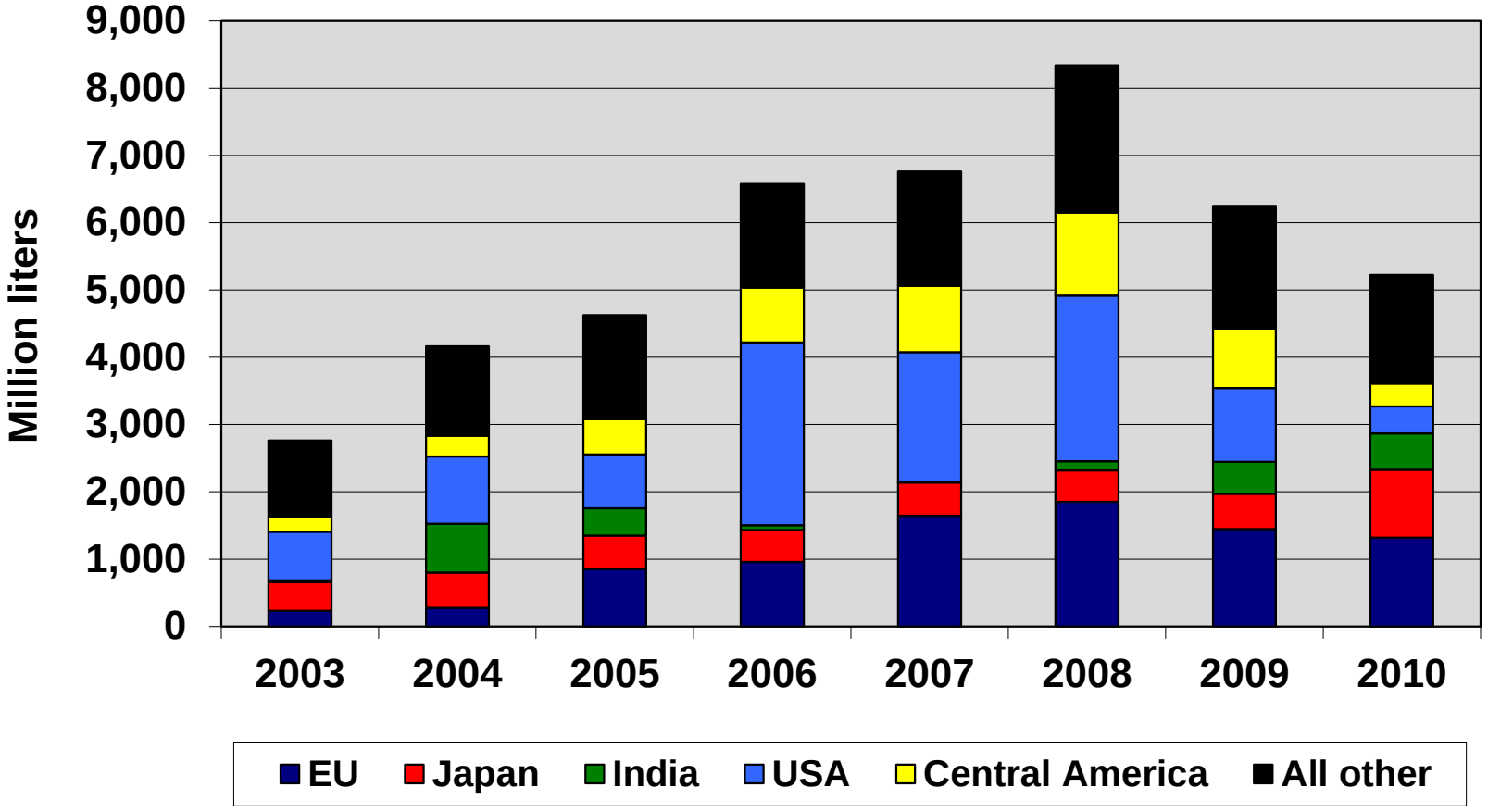
Source: LMC International.

Global ethanol exports, 2003-2010



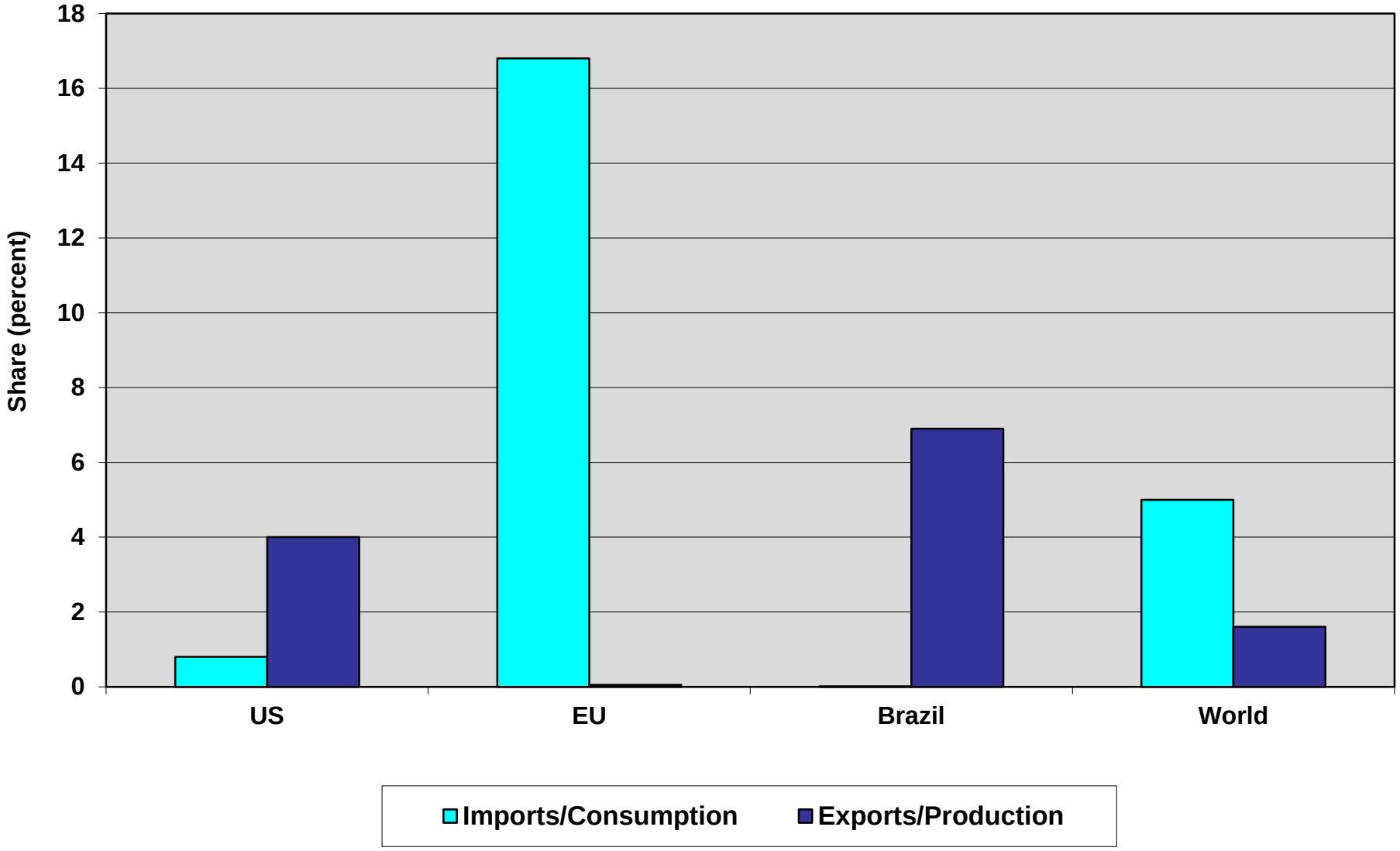
Source: LMC International.

Global ethanol imports, 2003-2010



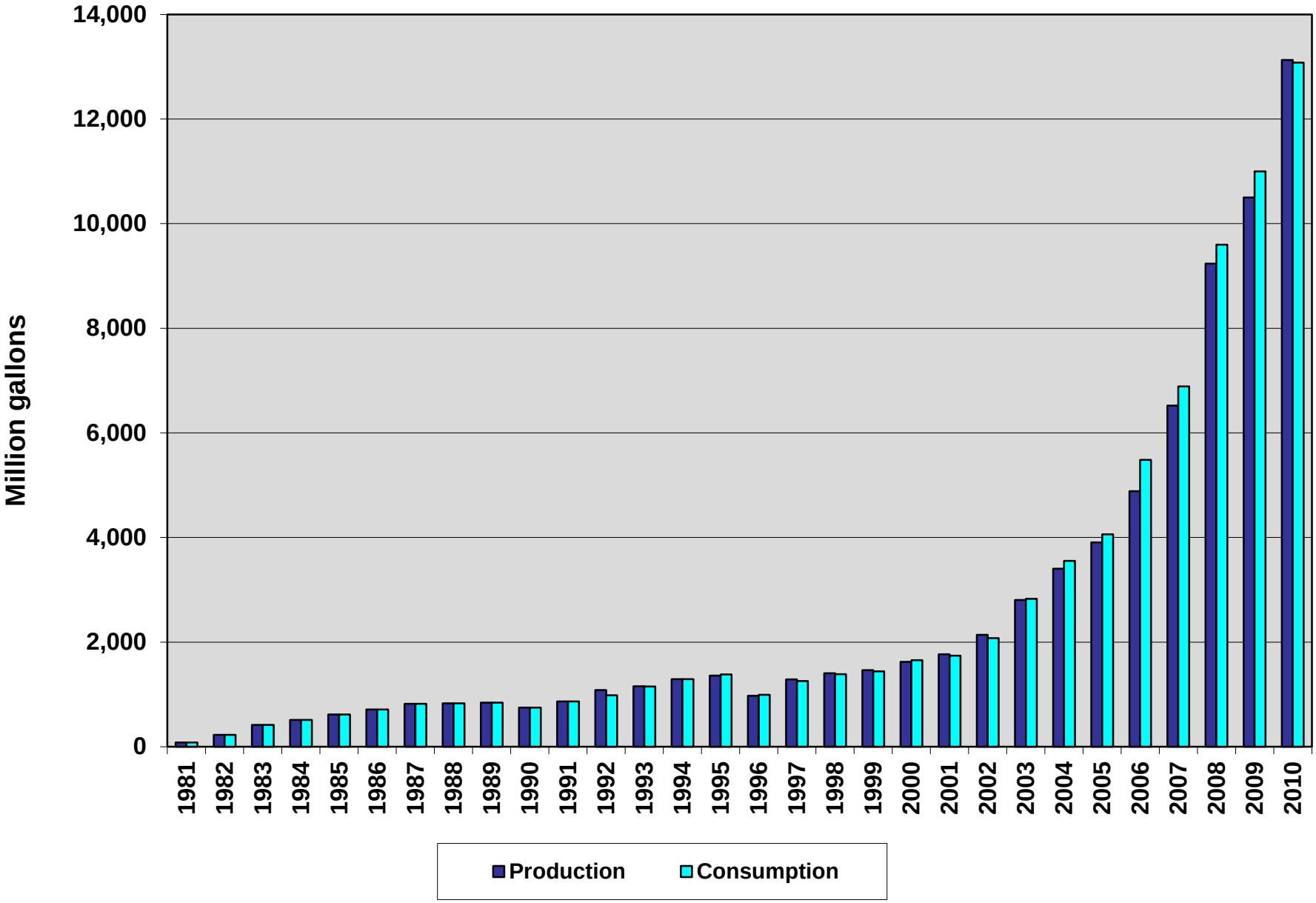
Source: LMC International.

Ethanol trade relative to domestic markets, 2010



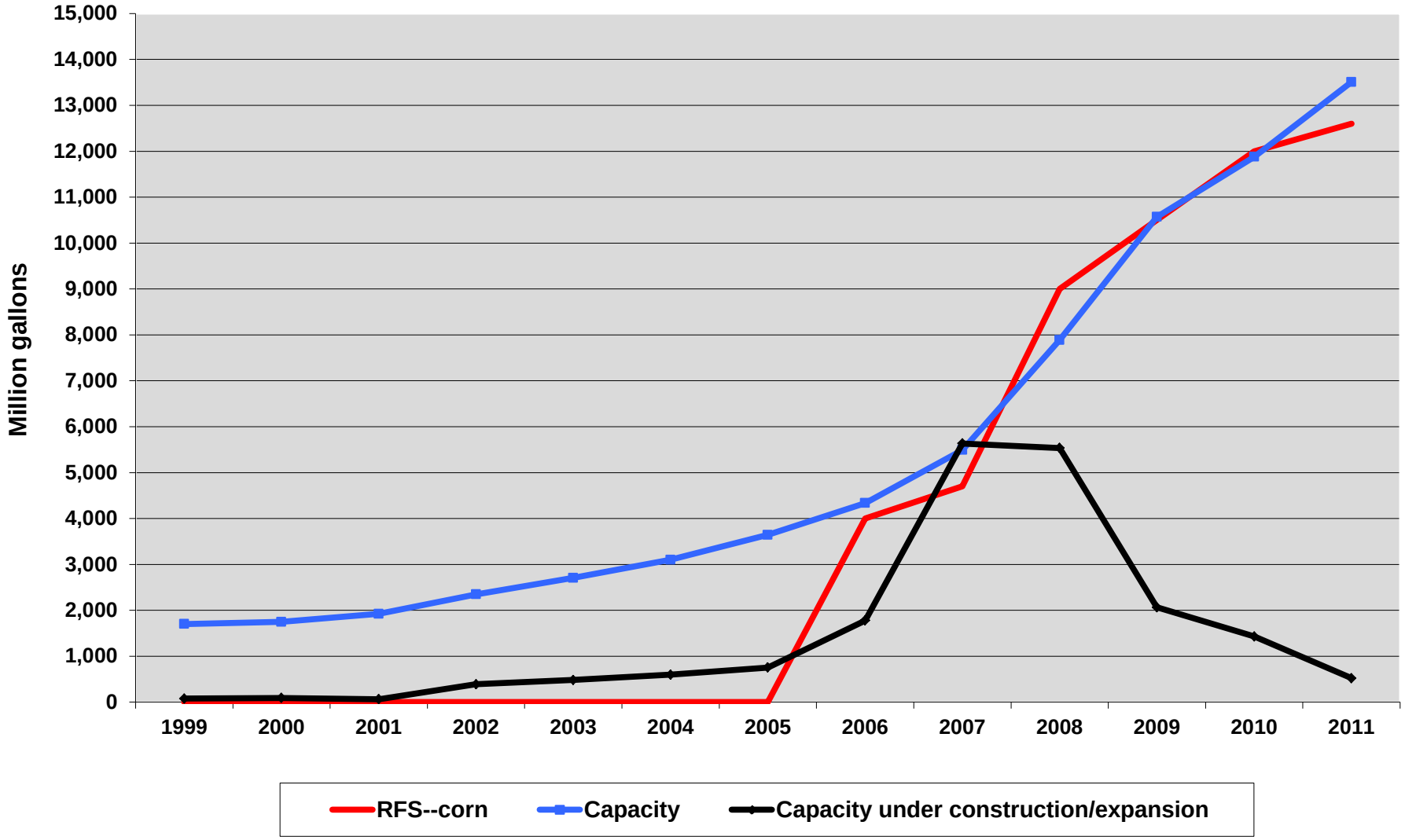
Source: LMC International.

U.S. fuel ethanol production and consumption, 1981-2010



Source: U.S. Department of Energy, Energy Information Administration.

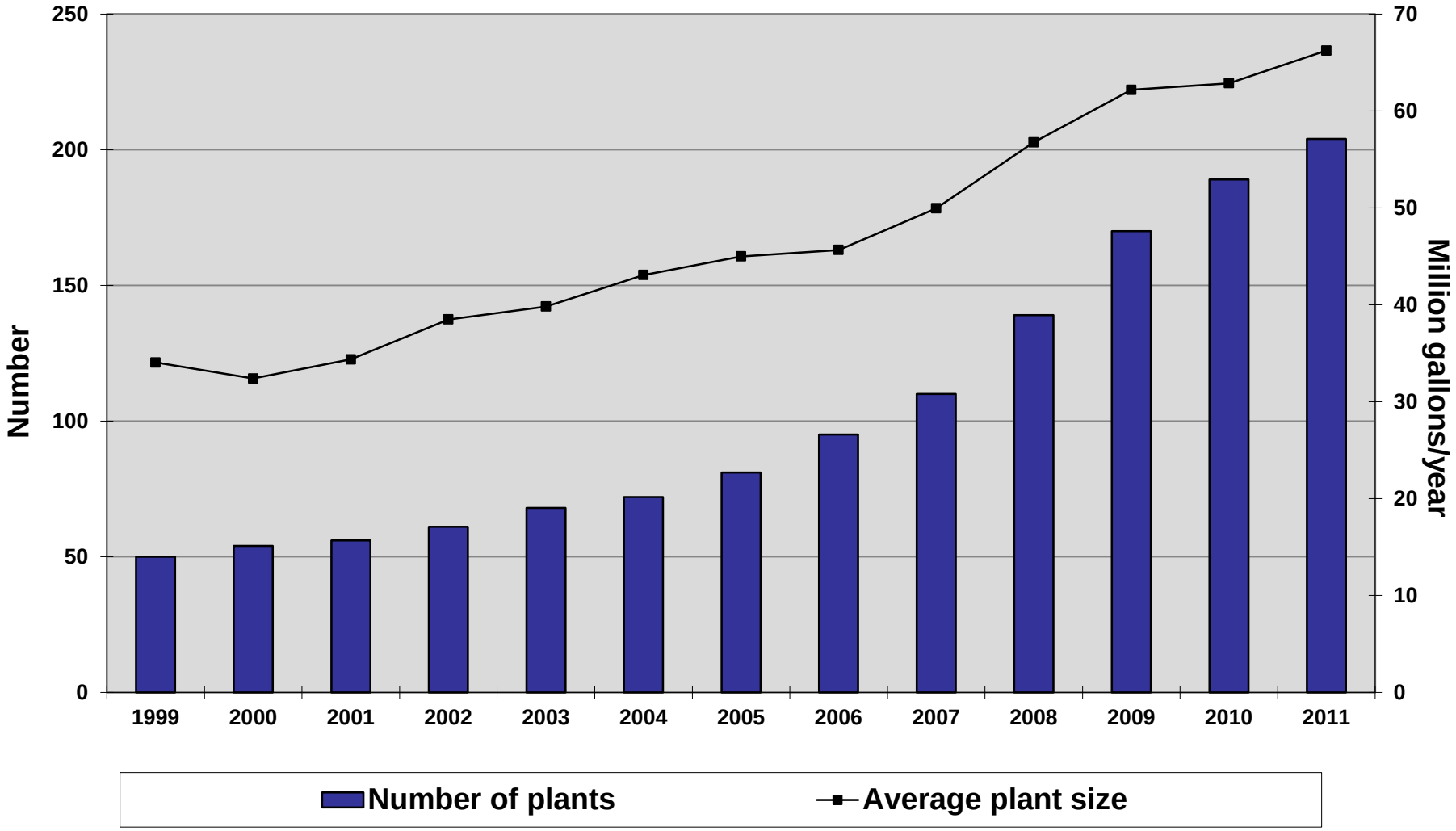
U.S. ethanol capacity, 1999-2011



Source: Renewable Fuels Association.

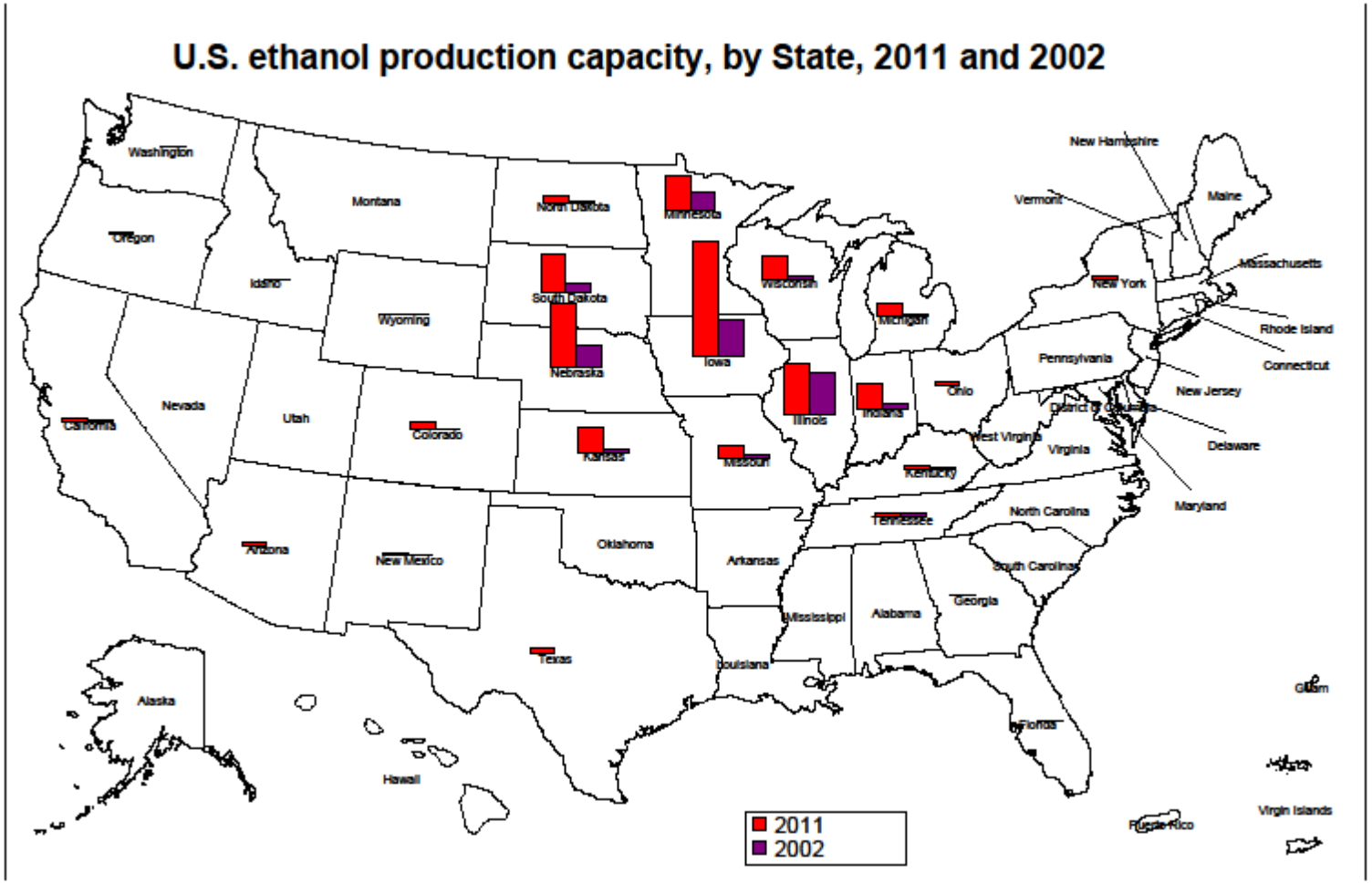
Note: Data are as of January 1 of the given year.

Number of U.S. ethanol plants and average plant size, 1999-2011



Source: Renewable Fuels Association.

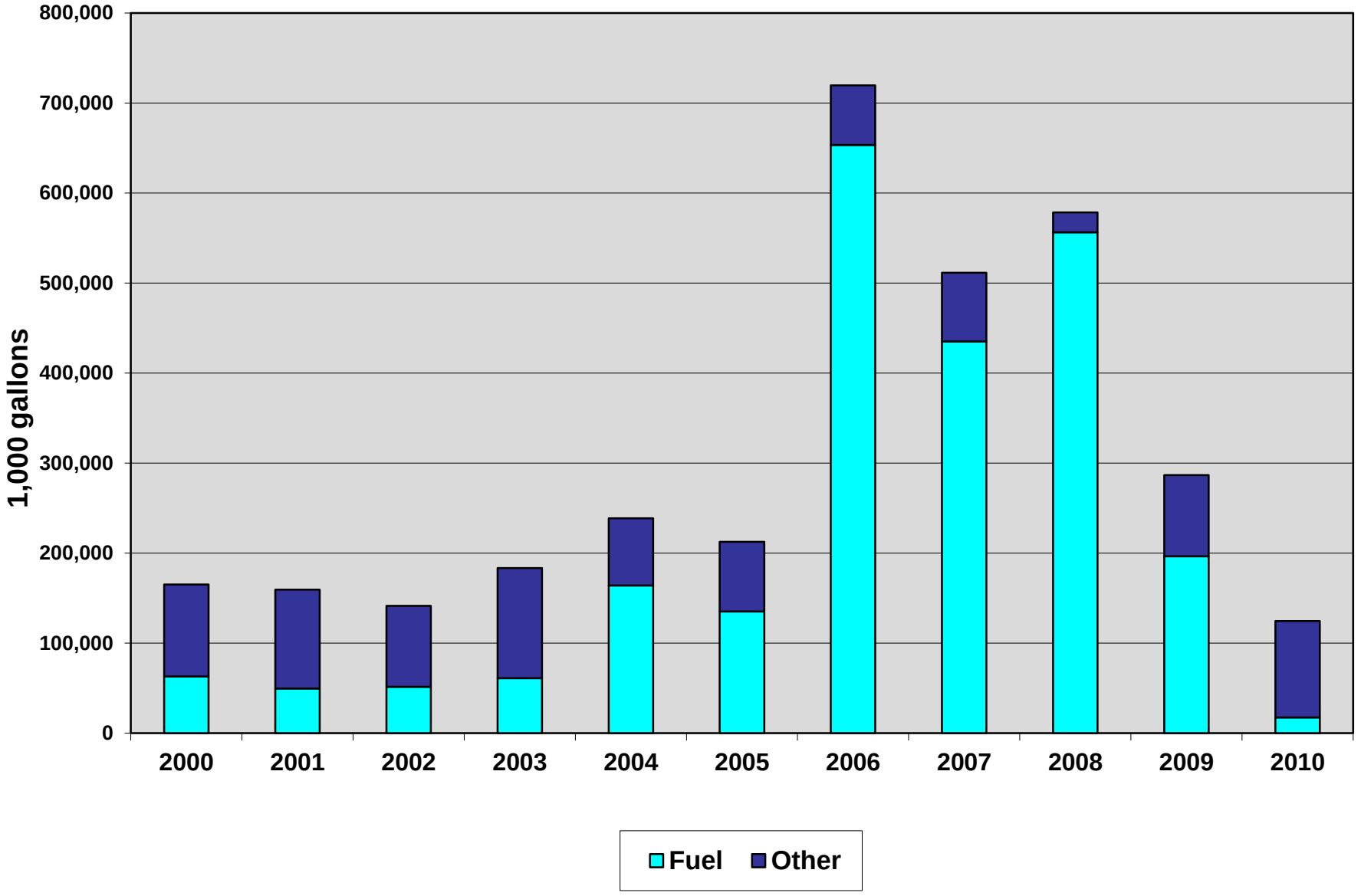
Note: Data are as of January 1 of the given year.



Source: Renewable Fuels Association.

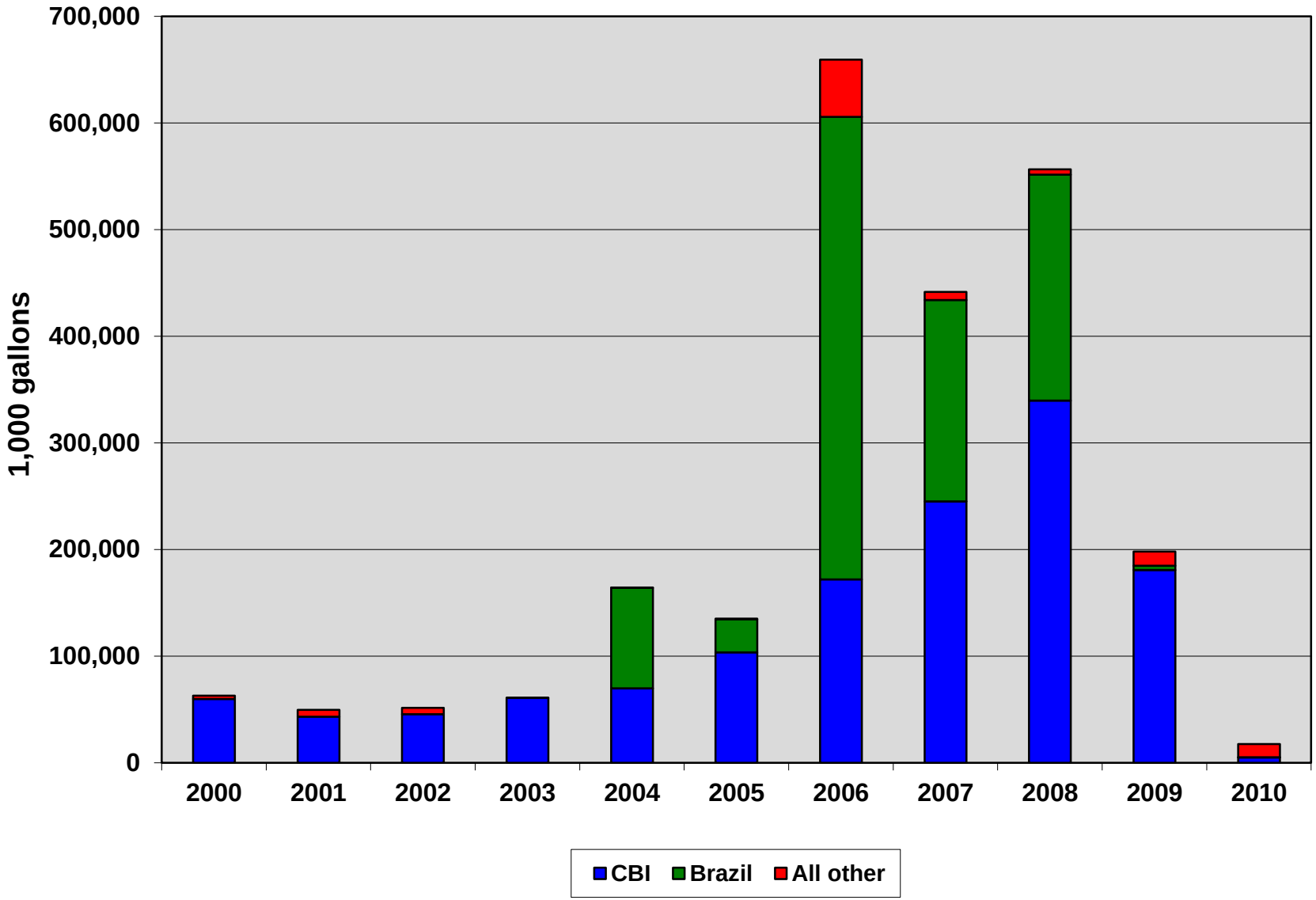
Note: Does not include cellulosic ethanol plants.

U.S. imports of nonbeverage ethanol, by type, 2000-2010



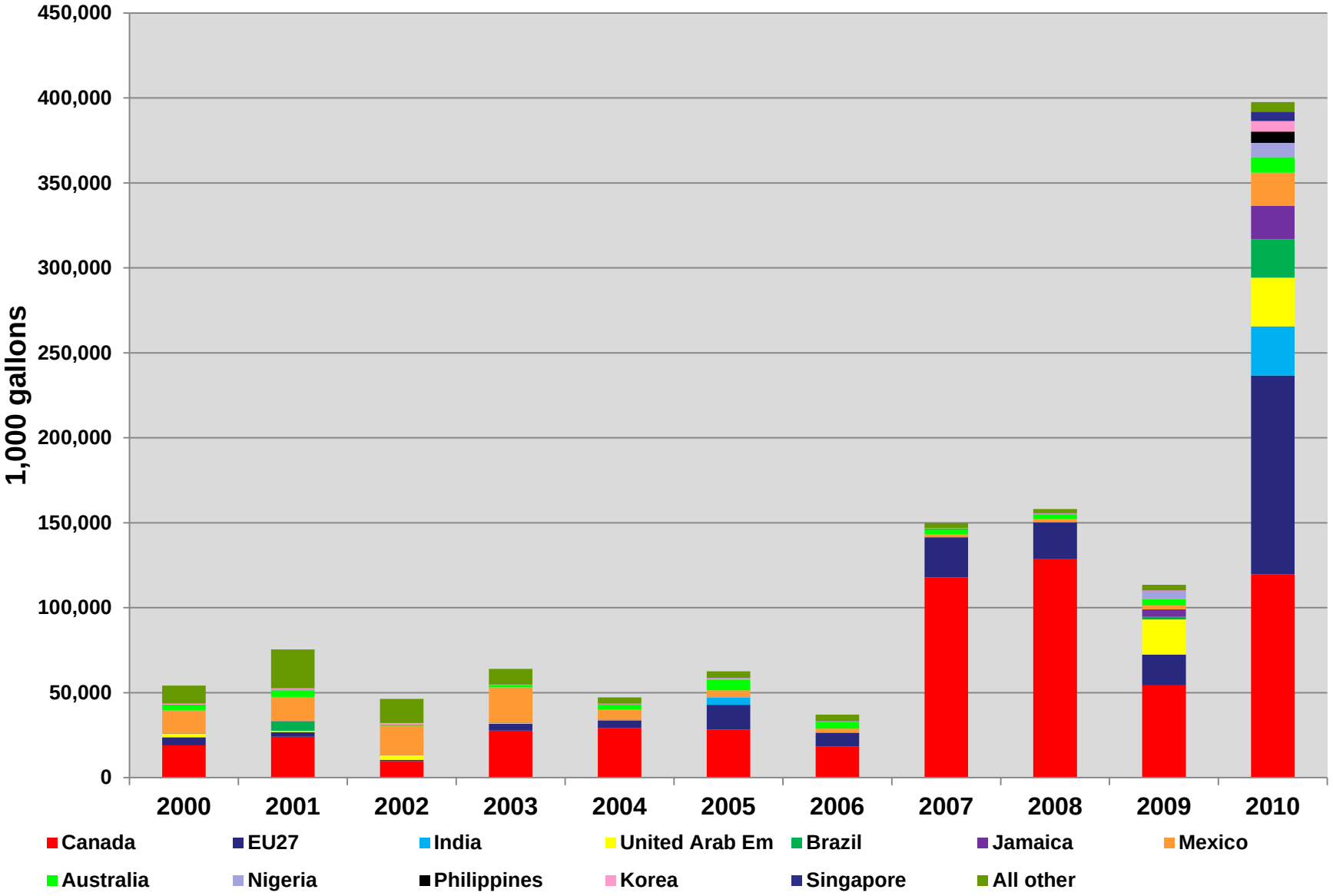
Source: Estimated by the USITC based on official statistics of the U.S. Department of Commerce.

U.S. fuel ethanol imports, by principal sources, 2000-2010



Source: Estimated by the USITC based on official statistics of the U.S. Department of Commerce.

U.S. exports of nonbeverage ethanol, by principal markets, 2000-2010



Source: Compiled from official statistics of the U.S. Department of Commerce.

Global Policy Overview

United States

- **Renewable Fuel Standard (2005; revised effective 2008)**
  - **Consumption mandate**
  - **Feedstock requirements**
  - **Greenhouse gas reduction requirements**
- **California Low Carbon Fuel Standard (effective 2011)**
  - **Carbon intensity reduction requirements**
- **Tax credits**
  - **VEETC (blenders)**
  - **Small producers**
  - **Cellulosic producers**
- **R&D grants and loans (biomass; processing)**
  - **BCAP**
  - **BRDI**
- **Tariffs (WTO--1.9%, 2.5%; ODC—54 cents/gal. applicable to fuel use)**
- **CBI dehydration origin quota (7% of U.S. consumption)**
- **Duty drawbacks (became more restrictive in 2008)**

European Union

- **Renewable Energy Directive (June 2009)**
  - **National Action Plans**
  - **Target of 10% renewable energy in transport sector by 2020 (energy basis)**
  - **Greenhouse gas emission reduction (35% in 2012; 50% in 2017; 60% in 2018 for new plants (>Jan. 1, 2017); grandfathering for old plants (<Jan. 23, 2008) until April 1, 2013**
  - **Sustainability criteria, certification requirements (biodiversity, carbon stocks of concern; forests, grasslands, peatlands)**
  - **Indirect land use change effects still under consideration**

- **Fuel Quality Directive (April 2009)**
  - **Low carbon fuel standard—reduce carbon intensity 6% by 2020**
  - **E10 phase-in**
  - **Coordinates with RED**

- **R&D funding (FP-7, CORDIS, SET-Plan, EIBI)**

- **Tariffs**
  - **Ethanol: undenatured—19.2 euros/hl; denatured—10.2 euros/hl**
  - **Fuel mixtures (HS ch. 38)—6.5% ad val.**
  - **ETBE—5.5% ad val.**

Brazil

- **Mandated blend in gasoline (18-25%)**
- **Mandated ethanol sales outlets (neat hydrous)**
- **National Petroleum Agency (ANP) regulation of ethanol market (Medida Provisioria 532)**
- **Sales tax incentive for flex-fuel vehicles (14% vs 16%)**
- **Preferential tax treatment vs gasoline (CIDE, PIS/COFINS)**
- **Project financing (BNDES; FINEM; BNDESPAR; FINAME)**
- **Intercrop inventory financing**
- **Irrigation financing (MODERINFRA)**
- **R&D funding (CNPAE; EMBRAPA; FINEP; FUNTEC; BNDES; MCT)**
- **Tariff—20% ad valorem (currently suspended)**

Canada

- **Renewable Fuels Standard--5% blend federal mandate**
- **Provincial mandates (Manitoba—8.5%; Saskatchewan—7.5%)**
- **Tax exemptions, credits (many discontinued)**
- **Federal and provincial R&D grants, construction loans, production incentives**
- **Tariff ($0.05/liter; NAFTA—free)**

U.S. Policy

Drivers

- **Rural development**
- **Energy security**
- **Environmental concerns**

Domestic Policy

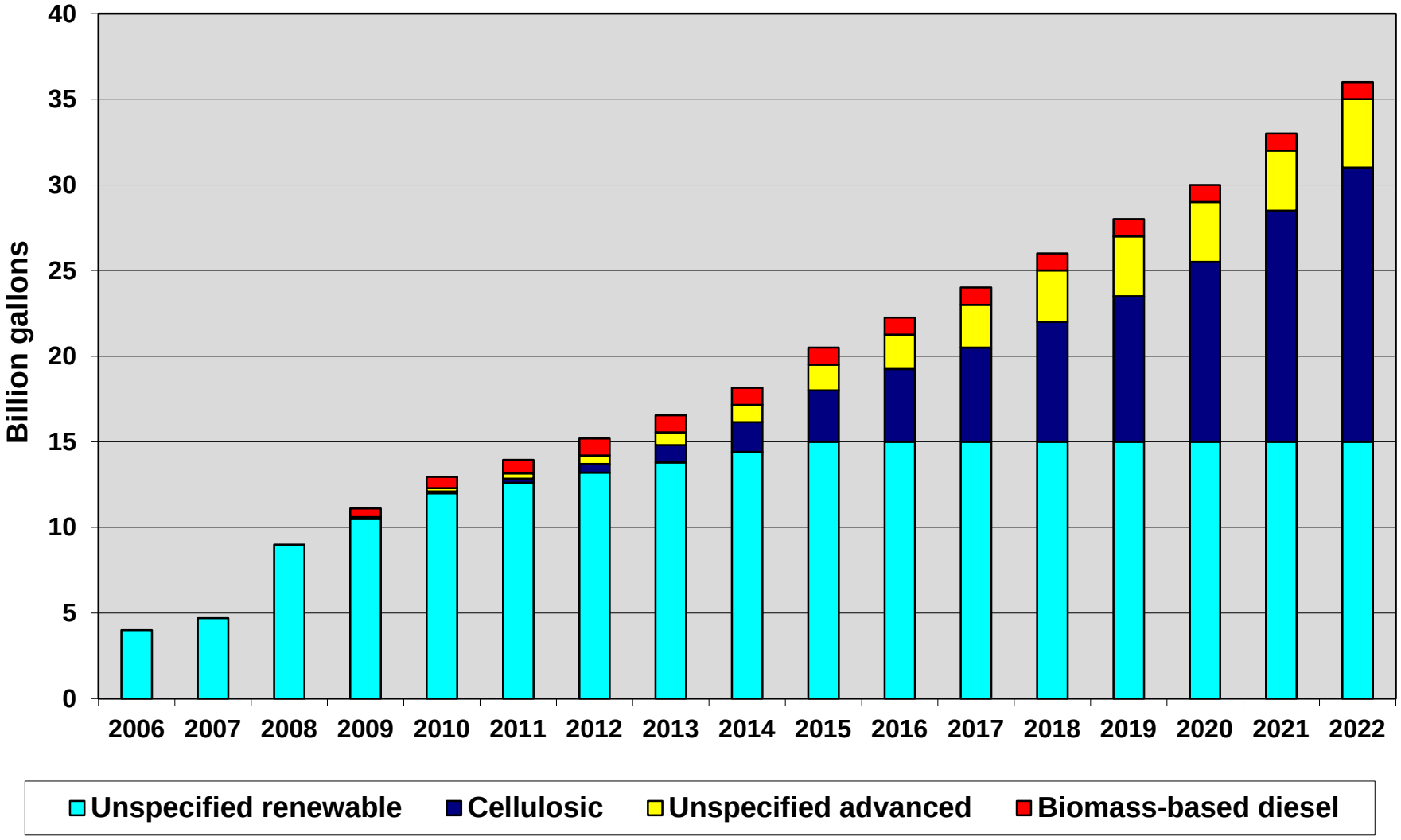
- **Major policy vehicles**
  - **Clean Air Act**
  - **American Jobs Creation Act of 2004**
  - **Energy Policy Act of 2005**
  - **Energy Independence and Security Act of 2007 (EISA)**
  - **Food, Conservation, and Energy Act of 2008 (Farm Bill)**
  - **Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010**

- **Major policy elements**
  - **Renewable Fuel Standard (RFS)**
  - **Volumetric Ethanol Excise Tax Credit (VEETC)**
  - **Small Ethanol Producer Tax Credit**
  - **Cellulosic Biofuel Producer Tax Credit**
  - **California Low Carbon Fuel Standard**
  - **Other incentives and mandates (Federal and State R&D grants and loan guarantees, infrastructure grants, State mandates and tax credits, small producer tax credits)**

Renewable Fuel Standard

- **Volume mandates (36 billion gallons by 2022)**
- **Renewable biomass requirement (land use restrictions)**
- **Advanced biofuels focus (21 billion gallons by 2022)**
- **Nested categories with feedstock restrictions (non corn starch; cellulosic)**
- **Greenhouse gas reduction requirements based on carbon lifecycle analysis (well-to-wheel; indirect land use effects)**
- **Complex Renewable Identification Number accounting system (RIN)**
  http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfsdata.htm
- **Registration of facilities is required**
  http://www.epa.gov/oms/regs/fuels/producers.htm

Renewable Fuel Standard, 2006-2022



Source: Energy Policy Act; EISA

Note: Data for 2006 and 2007 represent the Renewable Fuel Program. Areas represent original volume requirements.

The Renewable Fuel Standard

Year	Unspecified renewable fuel	Advanced biofuel				Total renewable fuel	
		Biomass-based diesel	Cellulosic	Unspecified	Total, advanced biofuel		
	Billions of gallons						Share of gasoline/diesel (percent)
2006	4	0	0	0	0	4	2.78
2007	4.7	0	0	0	0	4.7	4.02
2008	9	0	0	0	0	9	7.76
2009	10.5	0.5	0	0.1	0.6	11.1	10.21
2010	12	0.65	0.0065	0.2935	0.95	12.95	8.25
2011	12.6	0.8	0.0066	0.5434	1.35	13.95	8.01
2012	13.2	1	0.5	0.5	2	15.2	-
2013	13.8	1	1	0.75	2.75	16.55	-
2014	14.4	1	1.75	1	3.75	18.15	-
2015	15	1	3	1.5	5.5	20.5	-
2016	15	1	4.25	2	7.25	22.25	-
2017	15	1	5.5	2.5	9	24	-
2018	15	1	7	3	11	26	-
2019	15	1	8.5	3.5	13	28	-
2020	15	1	10.5	3.5	15	30	-
2021	15	1	13.5	3.5	18	33	-
2022	15	1	16	4	21	36	-
GHG reduction	Percent						
	20	50	60	50	-	-	-

Source: Energy Policy Act; EISA; 75 Fed. Reg. 76790 (December 9, 2010); EPA Regulatory Announcement EPA-420-F-10-007 (February 2010).

Note: The cellulosic volume was lowered substantially in 2010 and 2011; the biomass-based diesel standard was combined for 2009 and 2010.

Volumetric Ethanol Excise Tax Credit (VEETC)

- **Credit against federal excise tax on gasoline sales**
- **Provided to registered refiners and blenders**
- **Currently 45 cents/gallon (4.5 cents/gallon for E10)**
- **Amended to exclude imported ethanol used in exports of gasoline/ethanol blends**
- **Exports of ethanol/gasoline blends using domestic ethanol still receive VEETC; issue with EU**
- **Expires at the end of 2011**

Small Ethanol Producer Tax Credit

- **Credit against income tax on production up to 15 mg**
- **Cellulosic producers not subject to 15 mg limit**
- **Currently 10 cents/gallon**
- **Capped at $1.5 million/yr**
- **Provided to producers with a capacity of less than 60 mgy**
- **Expires at the end of 2012**

Cellulosic Biofuel Producer Tax Credit

- **Credit against federal income tax**
- **Currently $1.01/gallon**
- **VEETC subtracted for ethanol**
  $1.01-$0.45=$0.56/gallon
- **In addition to Small Ethanol Producers Tax Credit**
- **Expires at the end of 2012**

California Low Carbon Fuel Standard (CA LCFS)

- California Assembly Bill AB-32; Executive Order S-01-07
- Reduce carbon intensity of transportation fuels by at least 10 percent by 2020
- Applies to refiners, blenders, producers, and importers
- Compliance schedule begins in 2010; first year is for reporting only
- Resulted in increasing ethanol blend from 5.7% to 10%
- Carbon lifecycle analysis based on pathway (feedstock, production method, transportation, combustion) http://www.arb.ca.gov/fuels/lcfs/workgroups/workgroups.htm#pathways
- Registered production facilities http://www.arb.ca.gov/fuels/lcfs/reportingtool/registeredfacilityinfo.htm

CA LCFS Draft Compliance Schedule

Year	Gasoline and gasoline blends	
	Carbon intensity (gCO_2e/MJ)	% Reduction
Base	95.85	-
2011	95.61	0.25
2012	95.34	0.5
2013	94.89	1.0
2014	94.41	1.5
2015	93.45	2.5
2016	92.50	3.5
2017	91.06	5.0
2018	89.62	6.5
2019	88.18	8.0
2020+	86.27	10.0

Source: California Air Resources Board, The California Low Carbon Fuel Standard Regulation, Revisions to the Draft Regulation, January 2009, available at http://www.arb.ca.gov/fuels/lcfs/013009lcfs_drf_reg.pdf.

CA LCFS Initial Adjusted Fuel Carbon Intensity Values

Fuel	Pathway	Carbon Intensity Values (gCO_2e/MJ)		
		Direct Emissions	Land Use or Other Effects	Total
Gasoline	CARBOB	95.86	0	95.86
Corn ethanol (undenatured)	Midwest, average	69.40	30	99.40
	California, weighted average	65.66	30	95.66
Sugarcane ethanol (undenatured)	Brazil, average	27.40	46	73.40
	Brazil, cogen	20.40	46	66.40
	Brazil, cogen, mech	12.40	46	58.40
Cellulosic ethanol (preliminary analysis only; includes denaturant)	Farmed trees	2.40	18	20.40
	Forest waste	22.20	0	22.20

Note: As of December, 2009.

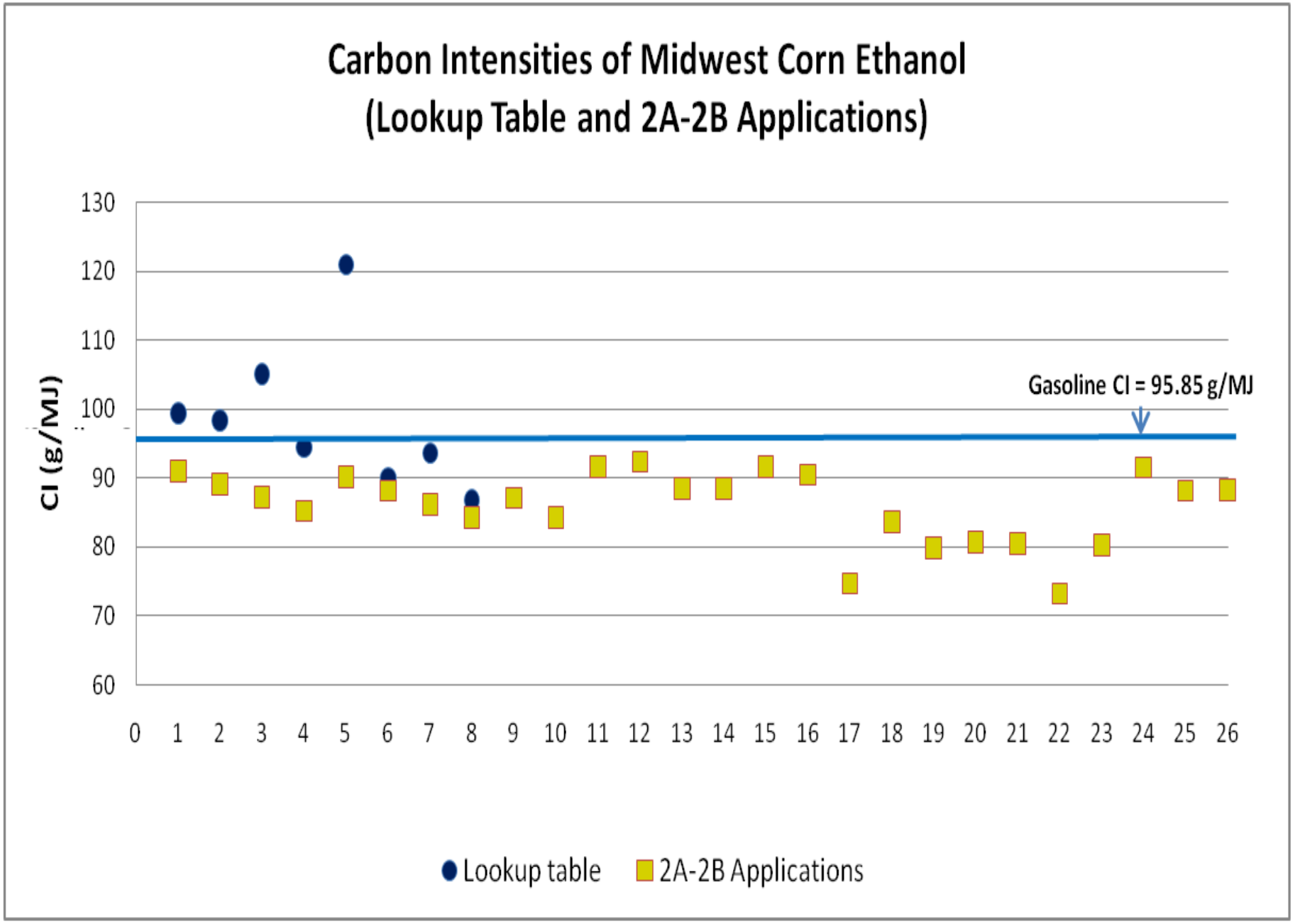
Source: California Air Resources Board, Lifecycle Analysis, version 2.1, available at http://www.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf.

CA LCFS Adjusted Fuel Carbon Intensity Values From Applications

Fuel	Pathway	Carbon Intensity Values (gCO_2e/MJ)		
		Direct Emissions	Land Use or Other Effects	Total
Gasoline	CARBOB	95.86	0	95.86
Corn ethanol (undenatured)	Lowest	43.20	30	73.20
	Highest	62.40	30	92.40
Sugarcane ethanol (undenatured)	Lowest	17.94	46	63.94
	Highest	32.94	46	78.94

Note: As of January 6, 2011. Only includes values from facilities that filed applications.

Source: California Air Resources Board, available at http://www.arb.ca.gov/fuels/lcfs/010611lcfs_lutables.pdf.



Source: California Air Resources Board. Contact: John Courtis, jcourtis@arb.ca.gov.

Northeast and Mid Atlantic Low Carbon Fuel Framework

- **CT, DE, ME, MD, MA, NH, NJ, NY, PA RI, VT**
- **Studying CA LCFS**
- **MOU on December 30, 2009 to develop own LCFS**
- **http://www.nescaum.org/topics/low-carbon-fuels**
- **Washington, Oregon also considering LCFS**

R&D

- **Biomass Research and Development Initiative (BRDI)**
  - **2002 Farm Bill; Energy Policy Act of 2005; 2008 Farm Bill**
  - **National Biofuels Action Plan (Oct. 2008)**
  - **Interagency Working Groups (feedstocks, logistics, conversion, support; OSTP, EPA, NSF, DOE, USDA, DOI, DOT, DOD)**
  - **http://www.usbiomassboard.gov/index.html**

- **Biomass Crop Assistance Program (BCAP)**
  - **2008 Farm Bill**
  - **Farm Service Agency, USDA**
  - **Support for production, collection, storage, and transport of energy crops**
  - **Direct payments; matching payments**
  - **http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap**

Trade Policy

- **Major policy vehicles**
  - **Tariff Act of 1930**
  - **Omnibus Trade and Competitiveness Act of 1988**
  - **Steel Trade Liberalization Program Implementation Act of 1989**
  - **Various FTAs and PTAs**

- **Major policy elements**
  - **Tariffs and Other Duties and Charges (ODC)**
  - **CBI dehydration quota**
  - **Duty drawback**

U.S. Fuel Ethanol Tariffs and ODC

HTS subheading	Tariff/ODC		Preference programs
	Column 1	Preferential	
2207.10.6010 (undenatured)	2.5 % ad valorem	Free	GSP+ (least-developed), Australia, ATPA, Bahrain, NAFTA, CBERA, Israel, Jordan, Morocco, DR-CAFTA, Singapore, Chile, Peru U.S. insular possessions
2207.20.0010 (denatured)	1.9 % ad valorem	Free	GSP+ (least-developed), Australia, Bahrain, NAFTA, CBERA, ATPA, Israel, Jordan, Morocco, DR-CAFTA, Singapore, Chile, Peru, U.S. insular possessions
9901.00.5000 (fuel use) In addition to ch. 22 duties. EXPIRES AT THE END OF 2011.	14.27 cents per liter (54 cents per gallon)	Free	GSP+ (least-developed), ATPA, NAFTA, Israel, CBERA, DR-CAFTA, U.S. insular possessions PERU FTA? PENDING PRESIDENTIAL PROCLAMATION

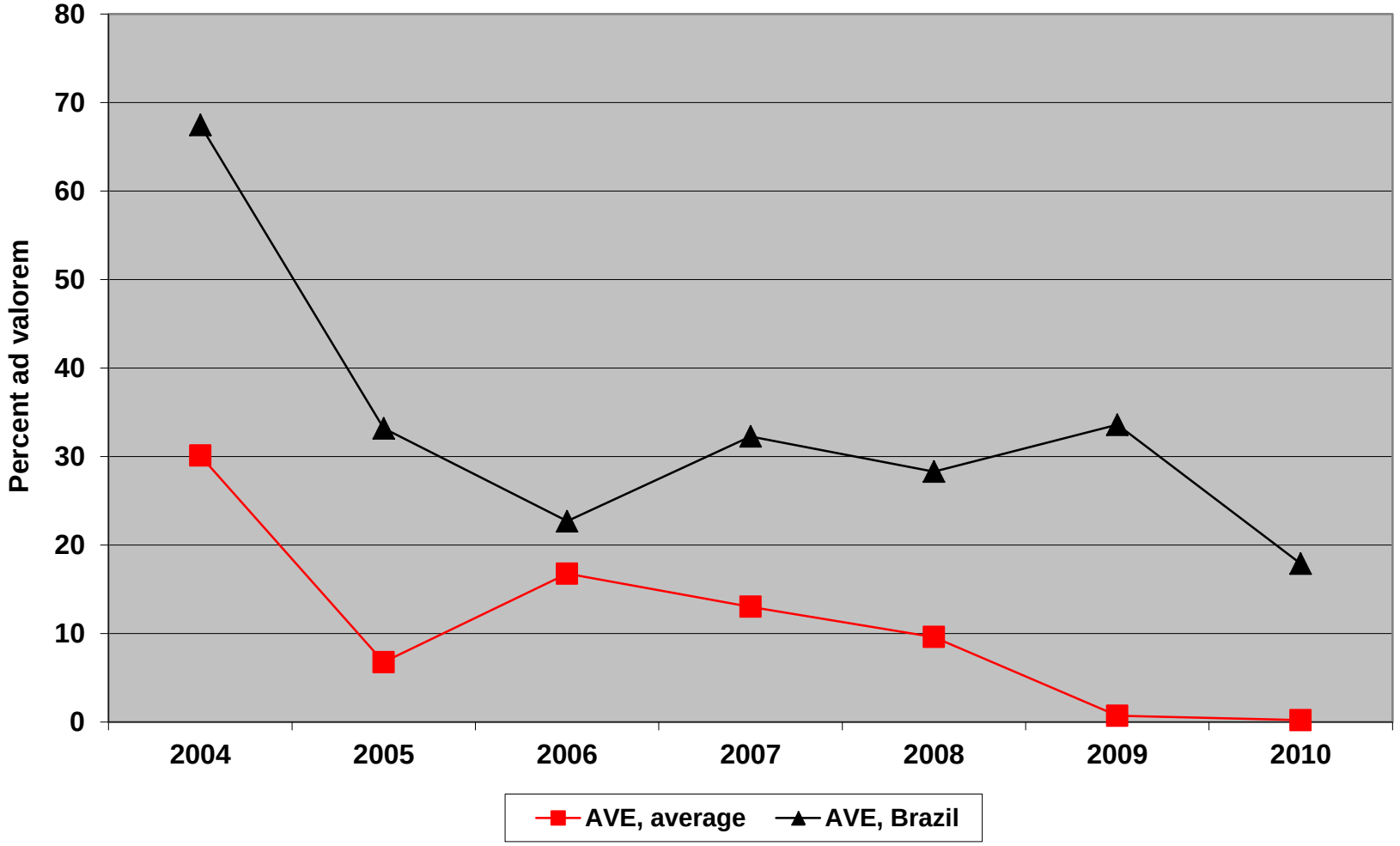
Source: HTSUSA.

U.S. Fuel Ethanol Blend Tariffs and ODC

HTS subheading	Tariff/ODC		Preference programs
	Column 1	Preferential	
2710.11.1500 (at least 70 percent petroleum, by weight)	52.5 cents/bbl	Free	GSP+ (least-developed), ATPA, Australia, Bahrain, NAFTA, CBERA, ATPA, Israel, Jordan, Morocco, DR-CAFTA, Singapore, Chile, Peru
3824.90.9290 (between 70% petroleum, by weight, and undenatured fuel ethanol) DIVIDING LINE BETWEEN CHAPTER 22 UNCLEAR	5% ad valorem	Free	GSP+ (least-developed), ATPA, Australia, Bahrain, NAFTA, CBERA, ATPA, Israel, Jordan, Morocco, DR-CAFTA, Singapore, Chile, Peru
9901.00.5000 (fuel use) In addition to ch. 22 duties. EXPIRES AT THE END OF 2011.	14.27 cents per liter (54 cents per gallon)	Free	GSP+ (least-developed), ATPA, NAFTA, Israel, CBERA, DR-CAFTA, U.S. insular possessions PERU FTA? PENDING PRESIDENTIAL PROCLAMATION

Source: HTSUSA.

U.S. ad valorem equivalent fuel ethanol import duty rates, 2004-2010



Source: USITC.

CBI Dehydration Quota

- **Confers origin for ethanol dehydrated from imported hydrous feedstocks**
  - **7% of U.S. consumption=>No local feedstock required**
  - **Additional 35 million gallons=>30% local feedstock blend required**
  - **Unlimited amount=>50% local feedstock blend**
- **Applies to CBERA, DR/CAFTA, U.S. Insular Possessions**
- **First-come, first-served**
- **DR/CAFTA reservations for El Salvador (>25 mgy) and Costa Rica (31 mgy)—Does not increase the quota; unfilled amount not reassigned**

CBI Fuel Ethanol Dehydration Capacity--2011

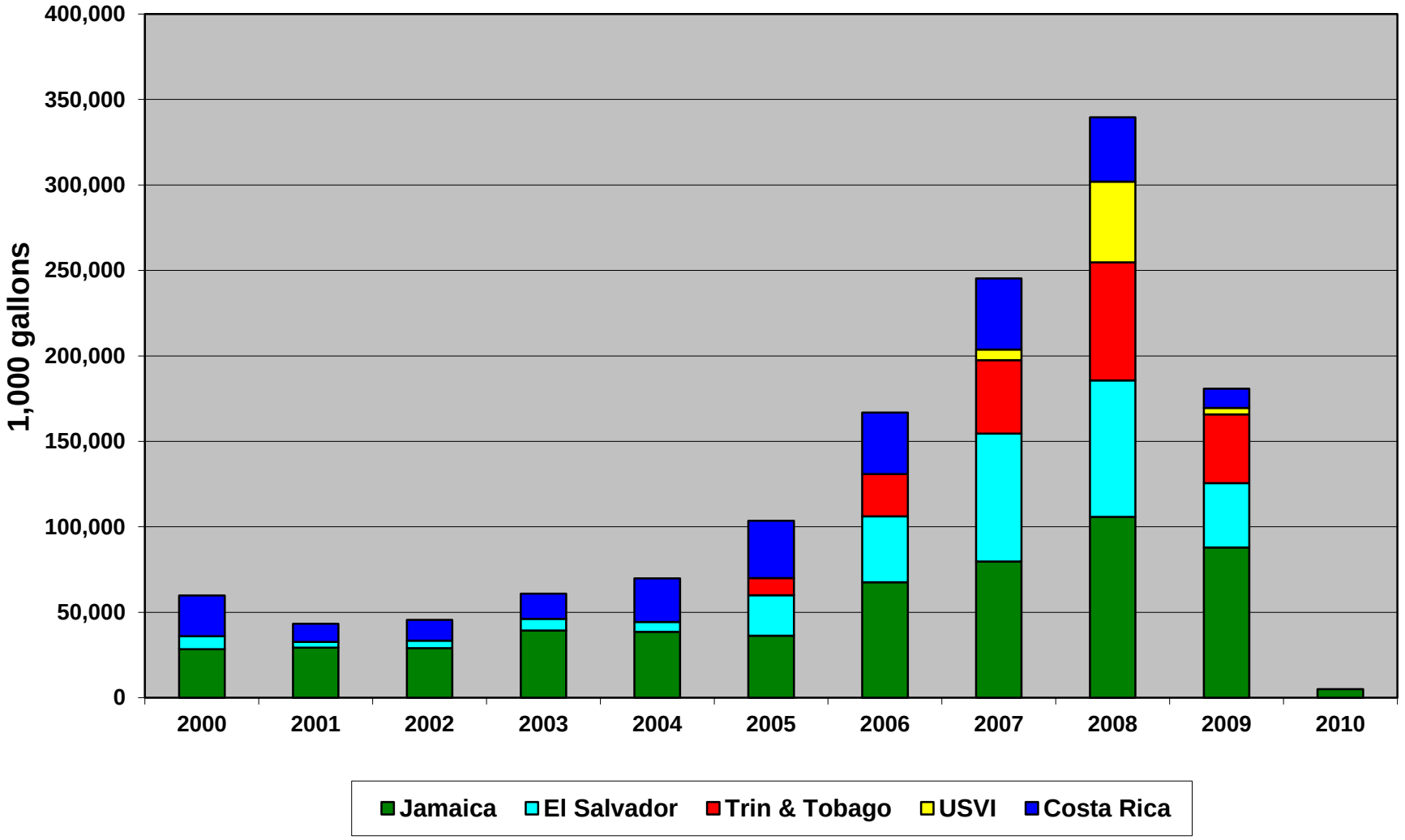
Country	Capacity (mgy)	Operator
Costa Rica.....	60	LAICA
El Salvador.....	170	Gasohol de El Salvador American Renewable Fuel Suppliers
Jamaica.....	215	Petrojam Jamaica Broilers JEPL
Trinidad & Tobago.....	200	TBTL Ethylchem
USVI (St. Croix).....	100	GeoNet
TOTAL.....	**745**	
East of Panama Canal....	515 (69%)	
West of Panama Canal....	230 (31%)	

2011 Quota: 875.4 mg

Possible future production locations:
Haiti, Guyana, Guatemala, Dominican Republic, Aruba, Barbados

Source: Caribbean Basin Ethanol Group; telephone conversations with industry officials.
Note: Data represent nameplate capacity on a hydrous input basis.

U.S. fuel ethanol imports under the CBI quota, by source, 2000-2010



Source: Estimated by the USITC based on official statistics of the U.S. Department of Commerce; CBP.

Duty Drawback

- **Jet fuel drawbacks**
  - **Sales of jet fuel used for overseas flights = deemed exports**
  - **Jet fuel and gasoline/ethanol blends share an 8-digit HTS subheading (2710.11.15)**
  - **Ethanol is NOT used to make jet fuel but is used to make gasoline/ethanol blends**
  - **Ethanol substitutes for gasoline**
  - **Thus, relevant jet fuel sales can be used to claim ethanol substitution drawbacks**
  - **Jet fuel drawbacks contributed to direct imports of anhydrous ethanol from Brazil during 2004-2008**
- **Drawback provisions were amended to require ethanol in exported product after Oct. 1, 2008, affecting direct imports from Brazil**
- **Imports must occur before drawbacks are generated by exports.**

Major Policy Issues

Domestic policy issues

- **Renewable Fuel Standard**
- **California Low Carbon Fuel Standard**
- **Indirect land use change**
- **Tax credits**
- **Blend wall**
- **Food vs. fuel**

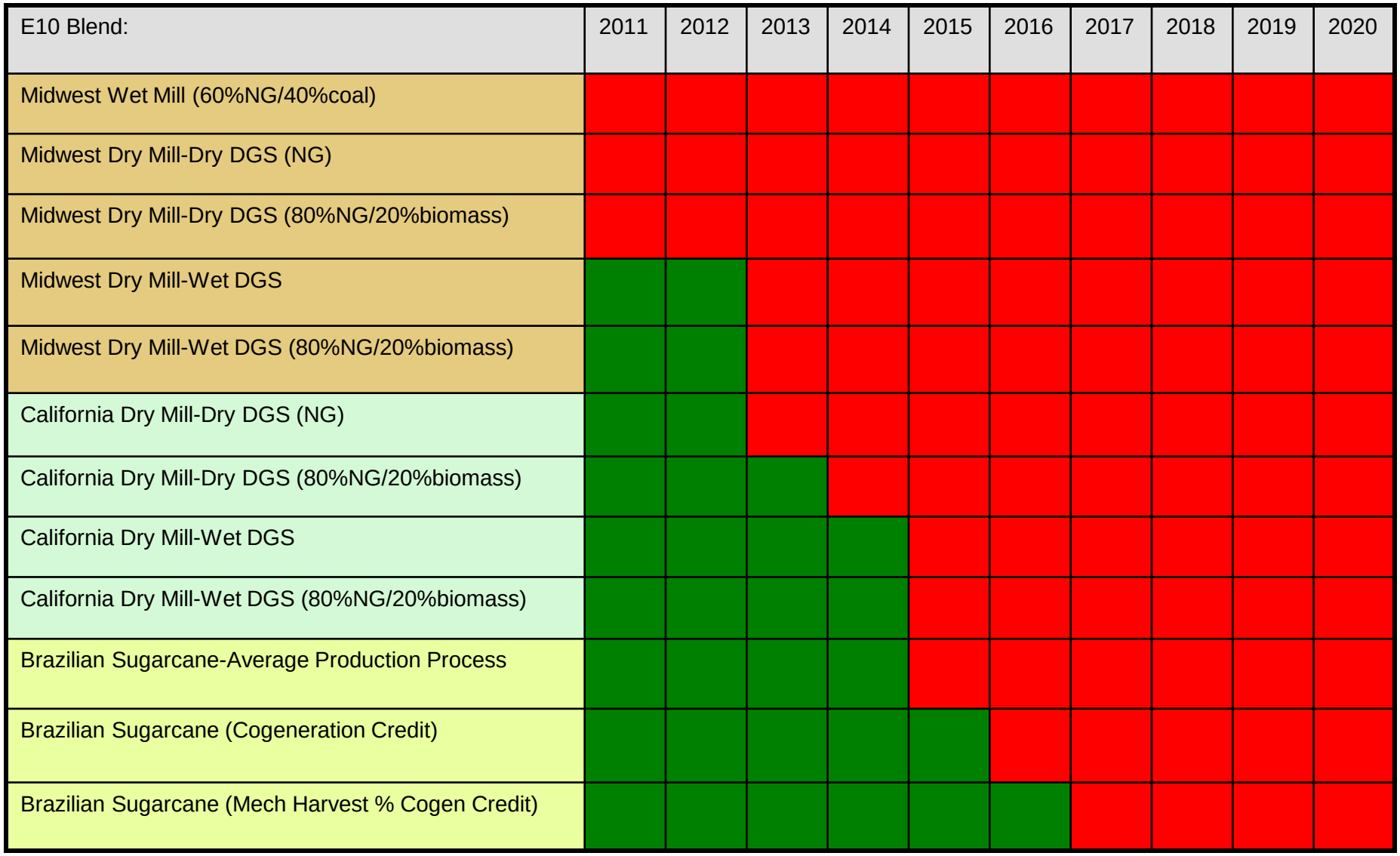
Trade policy issues

- **ODC**
- **CBI quota**
- **Exports**
- **Indirect land use change**
- **Food vs. fuel**
- **WTO**

Renewable Fuel Standard

- **Cellulosic and biodiesel volume shortfalls in near to medium term**
- **Sustainability criteria=>WTO issues (greenhouse gas reduction requirements; feedstock restrictions)**
- **Reliance on Brazil for advanced category—shortage of exportable hydrous feedstocks and direct anhydrous stocks in 2009 and 2010.**
- **Impact of blend wall**

California: E10 blends will eventually fail LCFS



Note: Red indicates noncompliance; green indicates compliance. Based on initial carbon intensity values.

Source: CARB.

California: E85 blends will fare better under the LCFS

E85 Blend:	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Midwest Wet Mill (60%NG/40%coal)										
Midwest Dry Mill-Dry DGS (NG)										
Midwest Dry Mill-Dry DGS (80%NG/20%biomass)										
Midwest Dry Mill-Wet DGS										
Midwest Dry Mill-Wet DGS (80%NG/20%biomass)										
California Dry Mill-Dry DGS (NG)										
California Dry Mill-Dry DGS (80%NG/20%biomass)										
California Dry Mill-Wet DGS										
California Dry Mill-Wet DGS (80%NG/20%biomass)										
Brazilian Sugarcane-Average Production Process										
Brazilian Sugarcane (Cogeneration Credit)										
Brazilian Sugarcane (Mech Harvest % Cogen Credit)										

Note: Red indicates noncompliance; green indicates compliance. Based on initial carbon intensity values.

Source: CARB.

Indirect Land Use Change

- **Criticism of modeling**
  - **Lack of current, relevant data**
  - **Use of off-the-shelf techniques (GTAP; GREET)**
  - **Assumptions crucial, variable**
  - **Difficult to assign share of effect to biofuels**
  - **Wide variation in results**

- **Recent Purdue study improves iLUC profile of U.S. corn ethanol (from CARB default 30g to 13.9g)**

- **CARB updating lifecycle analysis for U.S. corn ethanol, sugarcane ethanol, and soy biodiesel**

- **Implications for investment, trade**
  - **Market price differentials based on carbon**
  - **Capital drawn to lower carbon**
  - **Ability to meet carbon standards in export markets**

- **WTO concerns—nontariff measures**

Tax Credits

- **Temporary**
- **Debate over necessity given mandates, current budget situation, ethanol exports**
- **Producer tax credits could pose WTO issues**
- **VEETC export issue (EU)**
- **May be reduced or eliminated and supplemented or replaced by infrastructure subsidies**

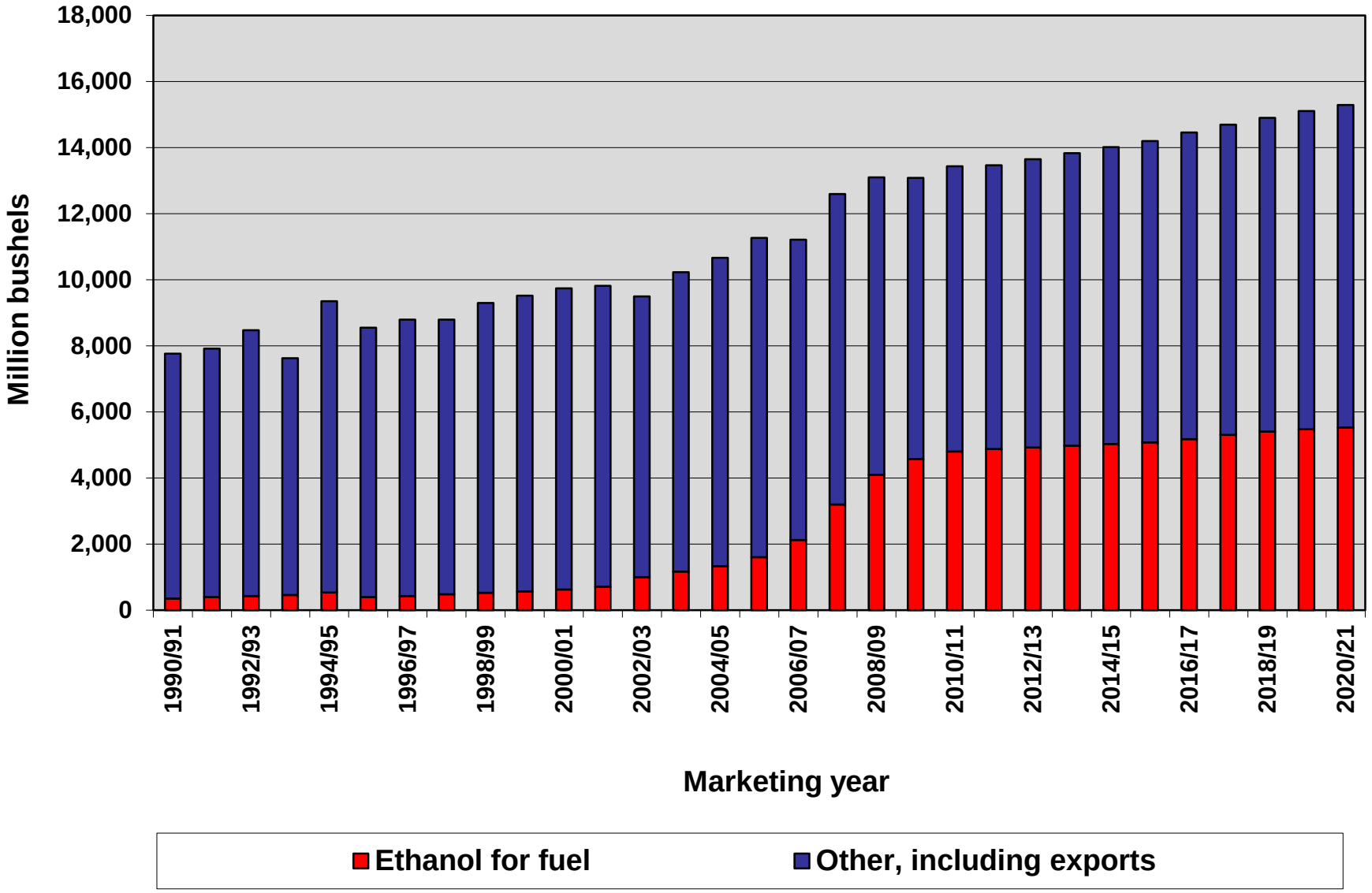
Blend wall

- **E10 is legal limit under Clean Air Act**
- **EPA approved E15 waiver for 2007+ model light engines in October 2010; 2002+ engines in January 2011 http://www.epa.gov/otaq/regs/fuels/additive/e15**
- **API, food and farm interests file law suit in November 2010**
- **E15 waiver concerns—older, smaller engines**
- **Potential constraint in 2012 and beyond**
- **Slow commercialization of cellulosic and uncertain availability of sugarcane ethanol may delay impact of blend wall**
- **E85 vehicles and infrastructure lagging**

Food vs. Fuel

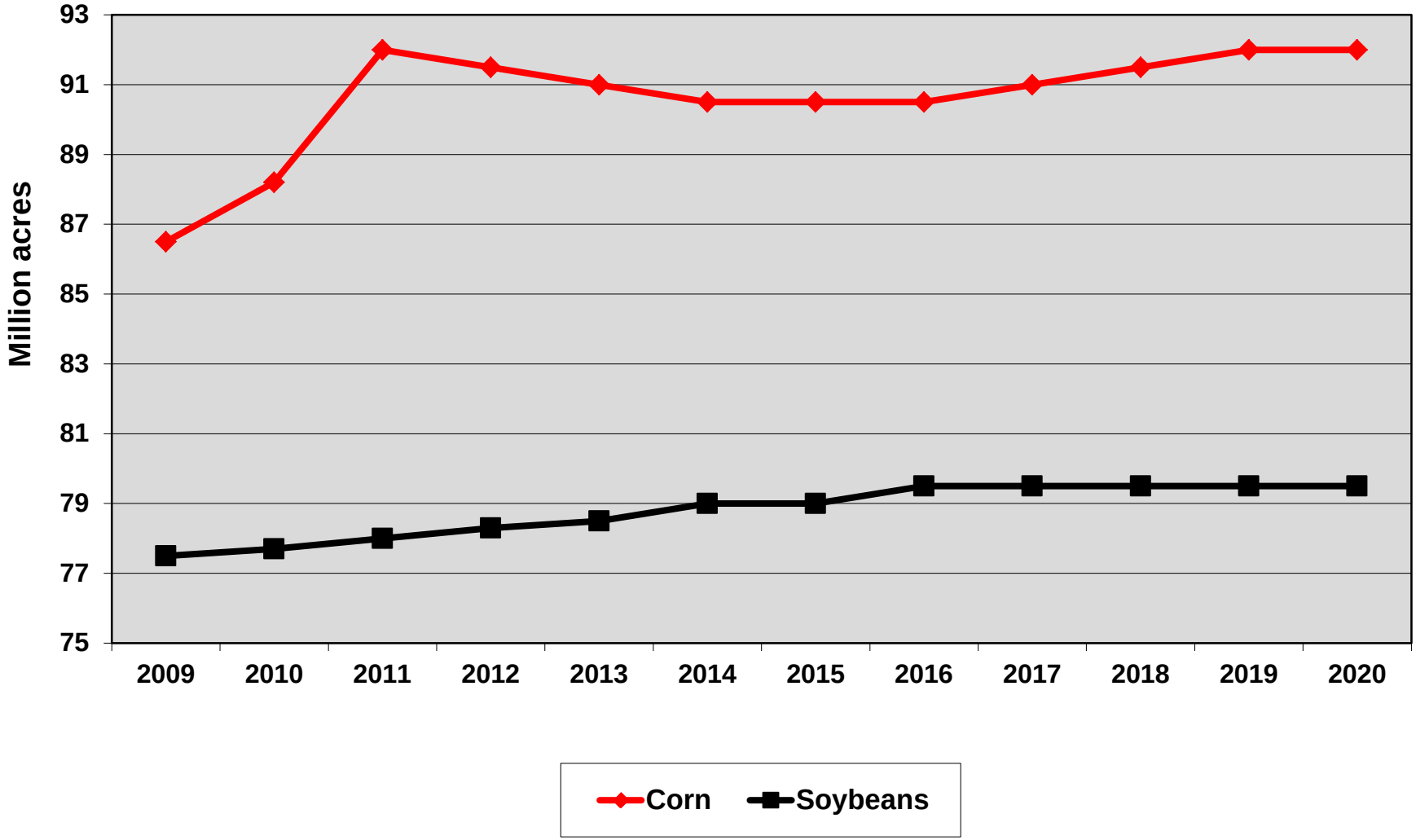
- **Concern that increasing use of food/feed feedstocks for biofuels contribute to rising commodity and food prices**
- **Wide range of estimates of impact (5%-75% in US)**
- **Other factors include weather, increasing demand (Asia), oil prices, speculation**
- **Productivity increases, DDGS mitigate effect**
- **Drive toward "2nd Generation" biofuels using non-food feedstocks and "3rd Generation" "drop-in" fuels**

U.S. corn use, marketing years 1990/91-2020/21



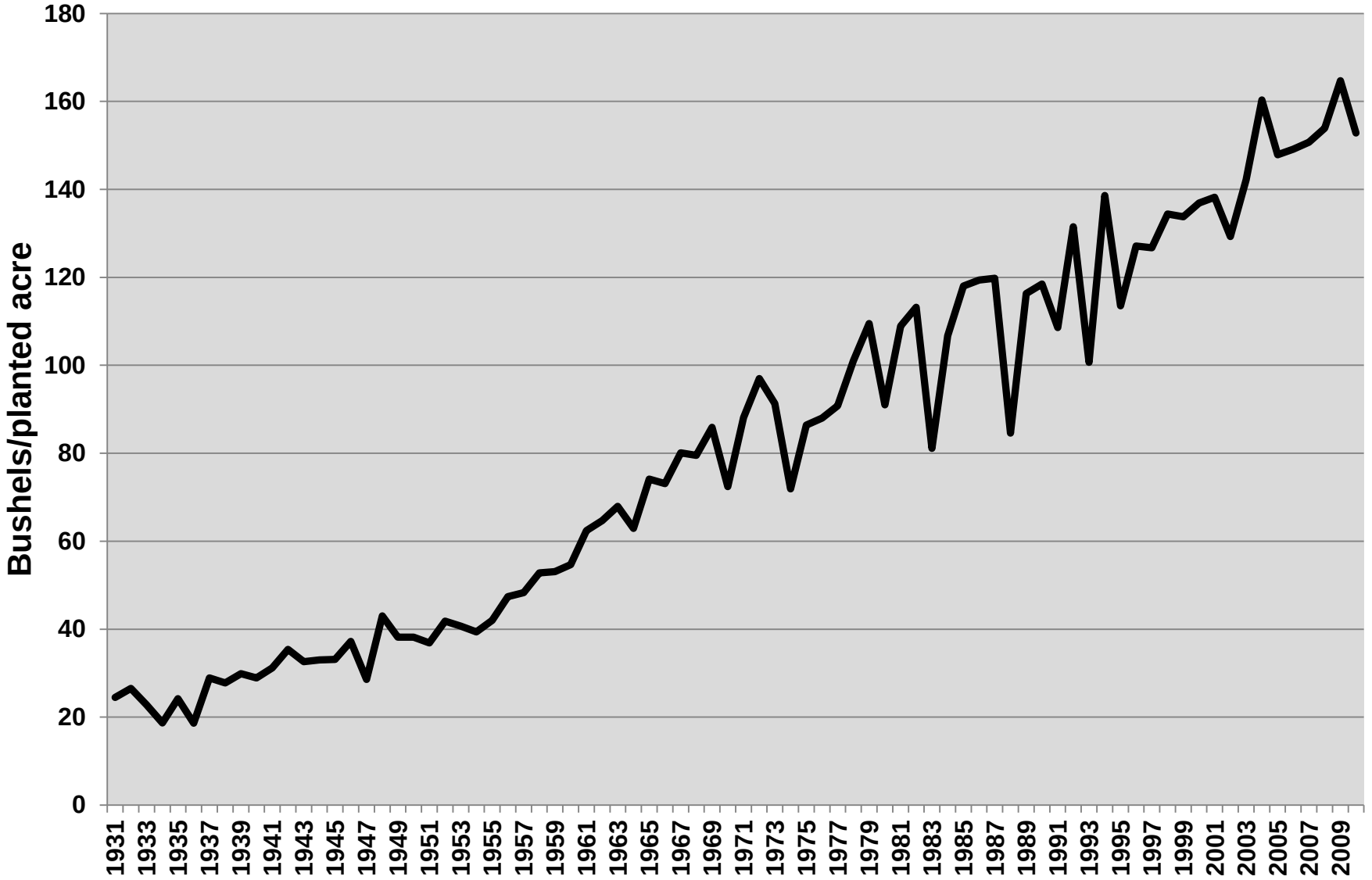
Source: USDA, ERS; USDA, *USDA Long-term Projections, February 2011*, available at http://www.ers.usda.gov/Publications/OCE111/OCE111d.pdf.

USDA 2011 acreage projections



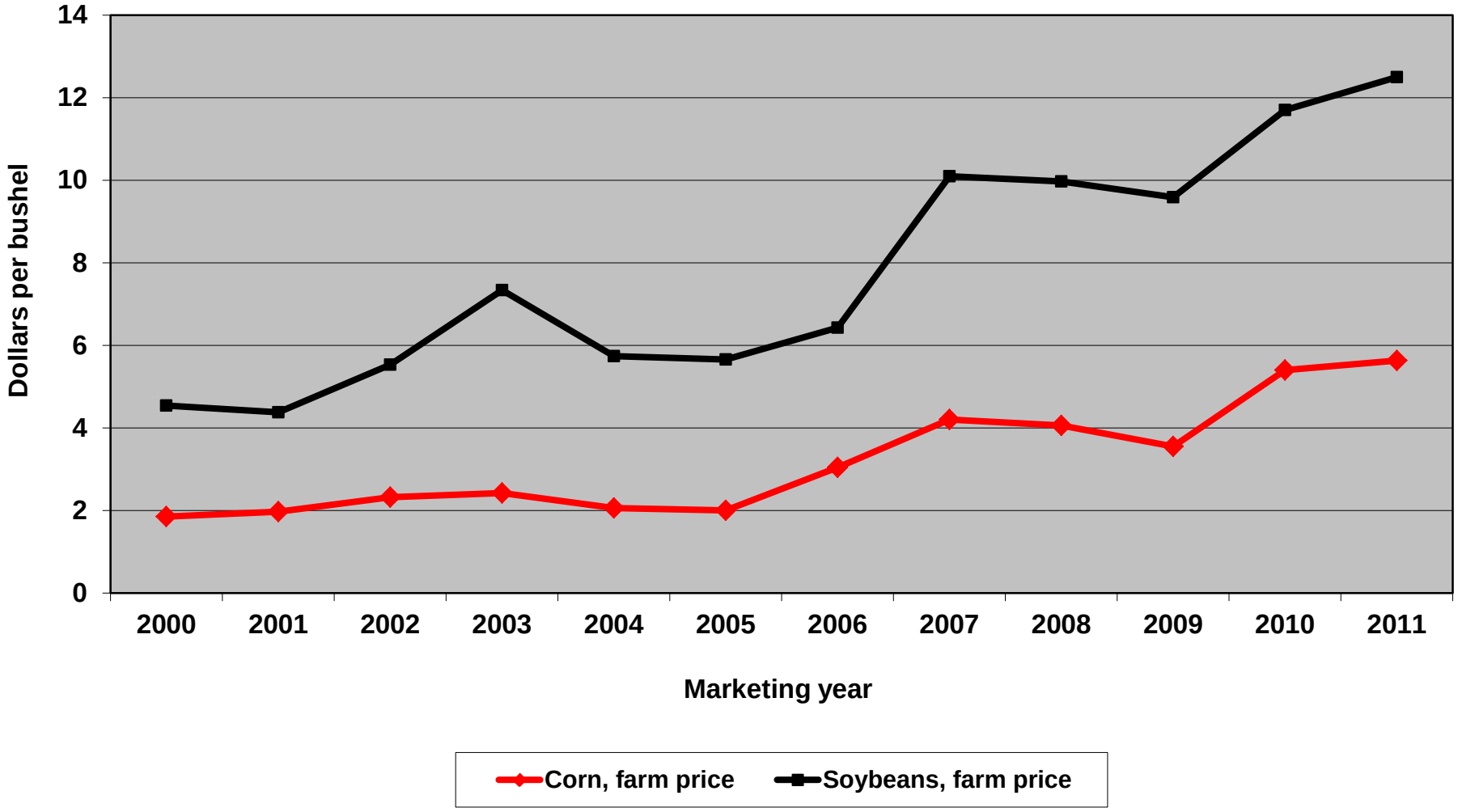
Source: USDA, ERS; USDA, *USDA Long-term Projections, February 2011*, available at http://www.ers.usda.gov/Publications/OCE111/OCE111d.pdf.

U.S. corn yield, 1930-2010



Source: USDA, ERS, Feed Grains Database, available at http://www.ers.usda.gov/Data/FeedGrains/.

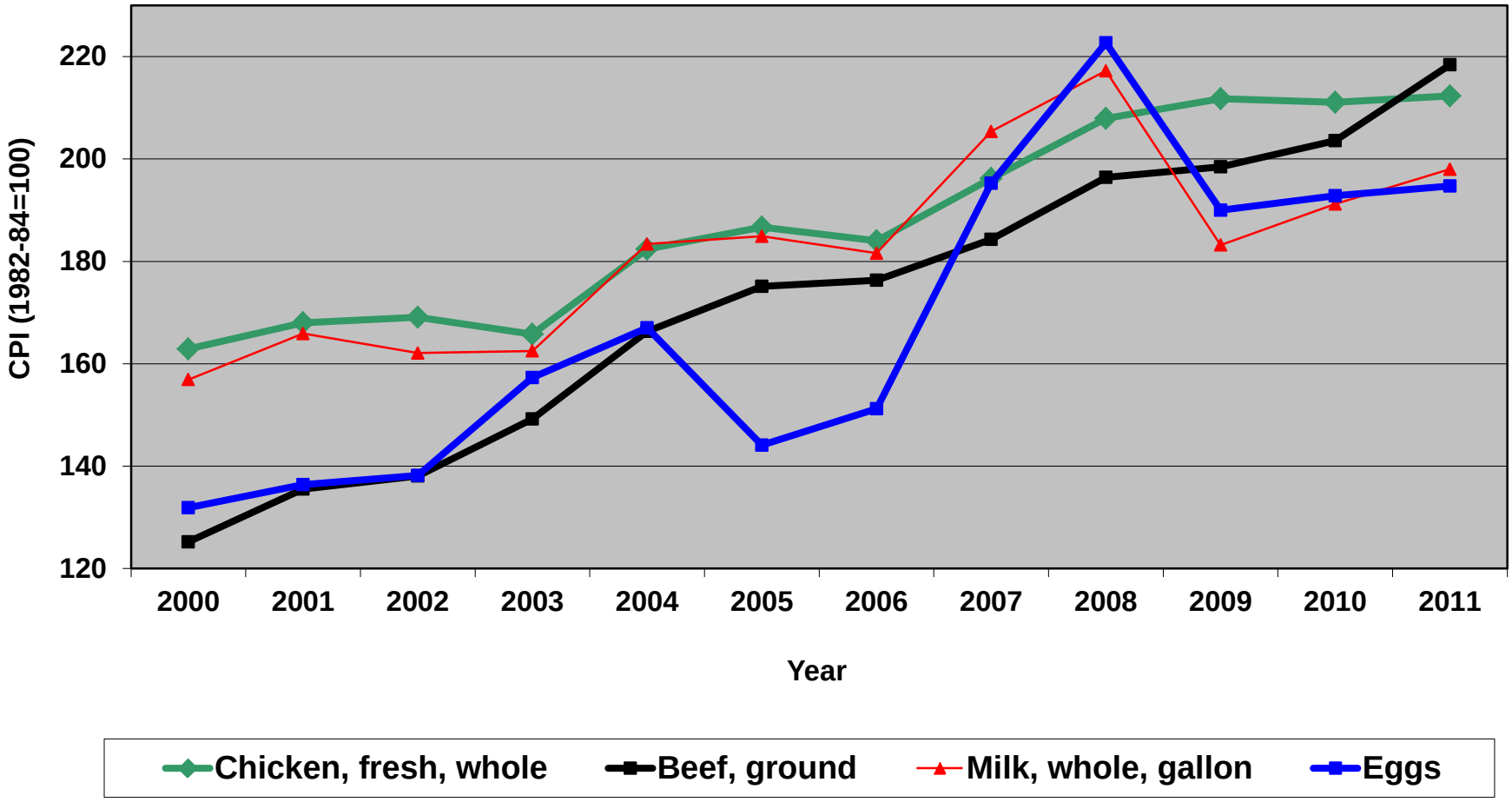
U.S. corn and soybean prices, 2000-2011



Note: 2011 through April.

Source: USDA, NASS. Available at http://quickstats.nass.usda.gov/.

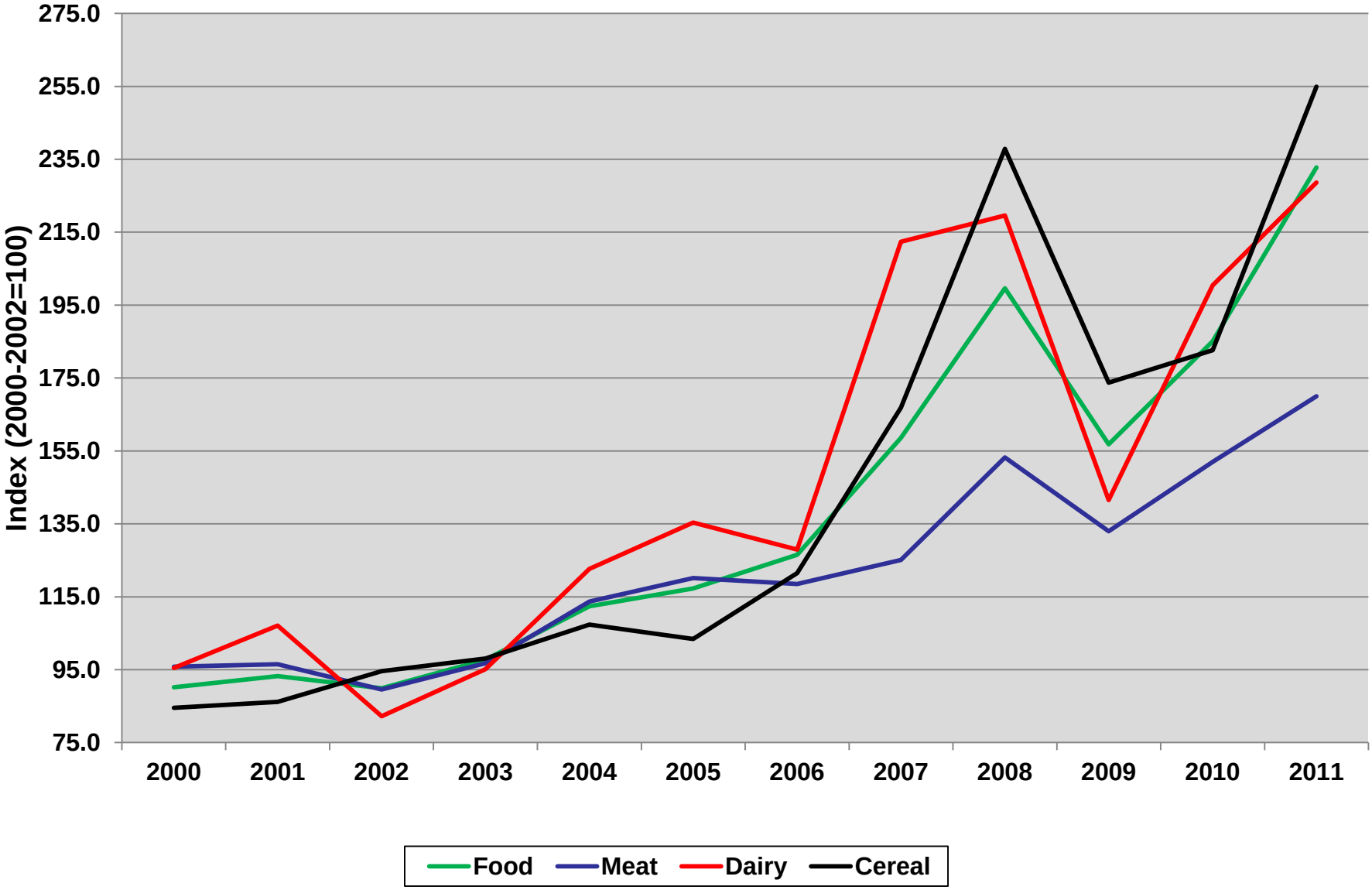
U.S. consumer price index for selected food items, 2000-2011



Note: 2011 through March.

Source: BLS, available at http://www.bls.gov/cpi/cpi_dr.htm#2005.

FAO food price indices, 2000-2011



Note: 2011 through April.
Source: FAO, available at http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/.

Tariffs

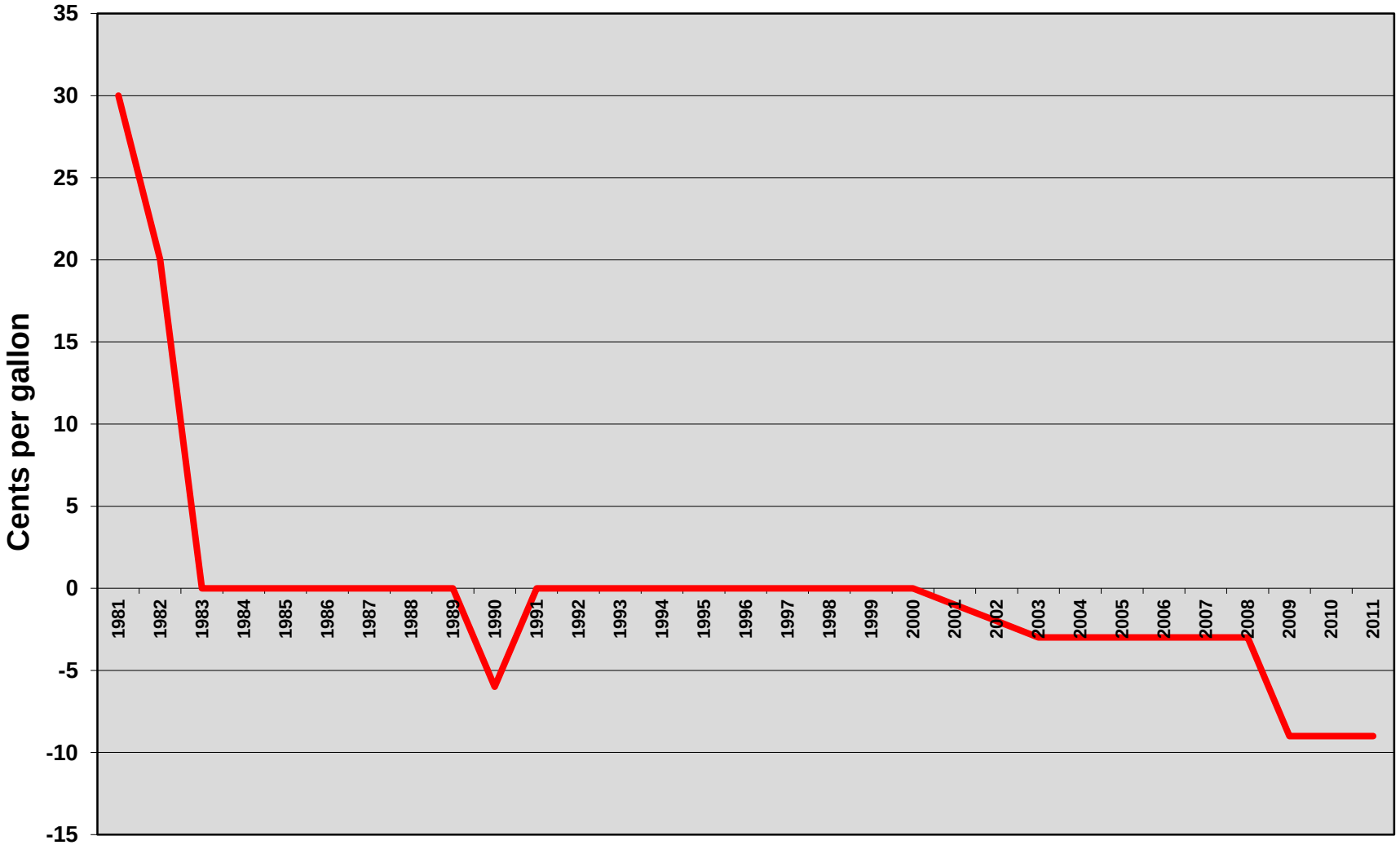
- **ODC is temporary—expires at end of 2011**
- **ODC is not subject to WTO negotiation**
- **ODC is not tied to VEETC**
- **ODC is bound at 54 cents/gallon**
- **ODC is greater than VEETC**
- **Pressure to eliminate ODC or equalize with VEETC**
- **ODC provides protection for CBI dehydrators and nascent U.S. cellulosic industry**

U.S. fuel ethanol duties and tax credit, 1980-2011

Year	NTR duties Undenatured/denatured (% ad val)	ODC (cents/gal)	Tax credit (cents/gal)	Year	NTR duties Undenatured/denatured (% ad val)	ODC (cents/gal)	Tax credit (cents/gal)
1980	3/3	0	40	1996	2.8/2.6	54	54
1981	3/3	10	40	1997	2.8/2.5	54	54
1982	3/3	20	40	1998	2.7/2.3	54	54
1983	3/3	50	50	1999	2.6/2.1	54	54
1984	3/3	50	50	2000	2.5/1.9	54	54
1985	3/3	60	60	2001	2.5/1.9	54	53
1986	3/3	60	60	2002	2.5/1.9	54	52
1987	3/3	60	60	2003	2.5/1.9	54	51
1988	3/3	60	60	2004	2.5/1.9	54	51
1989	3/3	60	60	2005	2.5/1.9	54	51
1990	3/3	60	54	2006	2.5/1.9	54	51
1991	3/3	54	54	2007	2.5/1.9	54	51
1992	3/3	54	54	2008	2.5/1.9	54	51
1993	3/3	54	54	2009	2.5/1.9	54	45
1994	3/3	54	54	2010	2.5/1.9	54	45
1995	2.9/2.8	54	54	2011	2.5/1.9	54	45

Source: TSUSA, HTSUS, CRS, EIA, EISA, FCEA.

Difference Between VEETC and ODC, 1981-2011

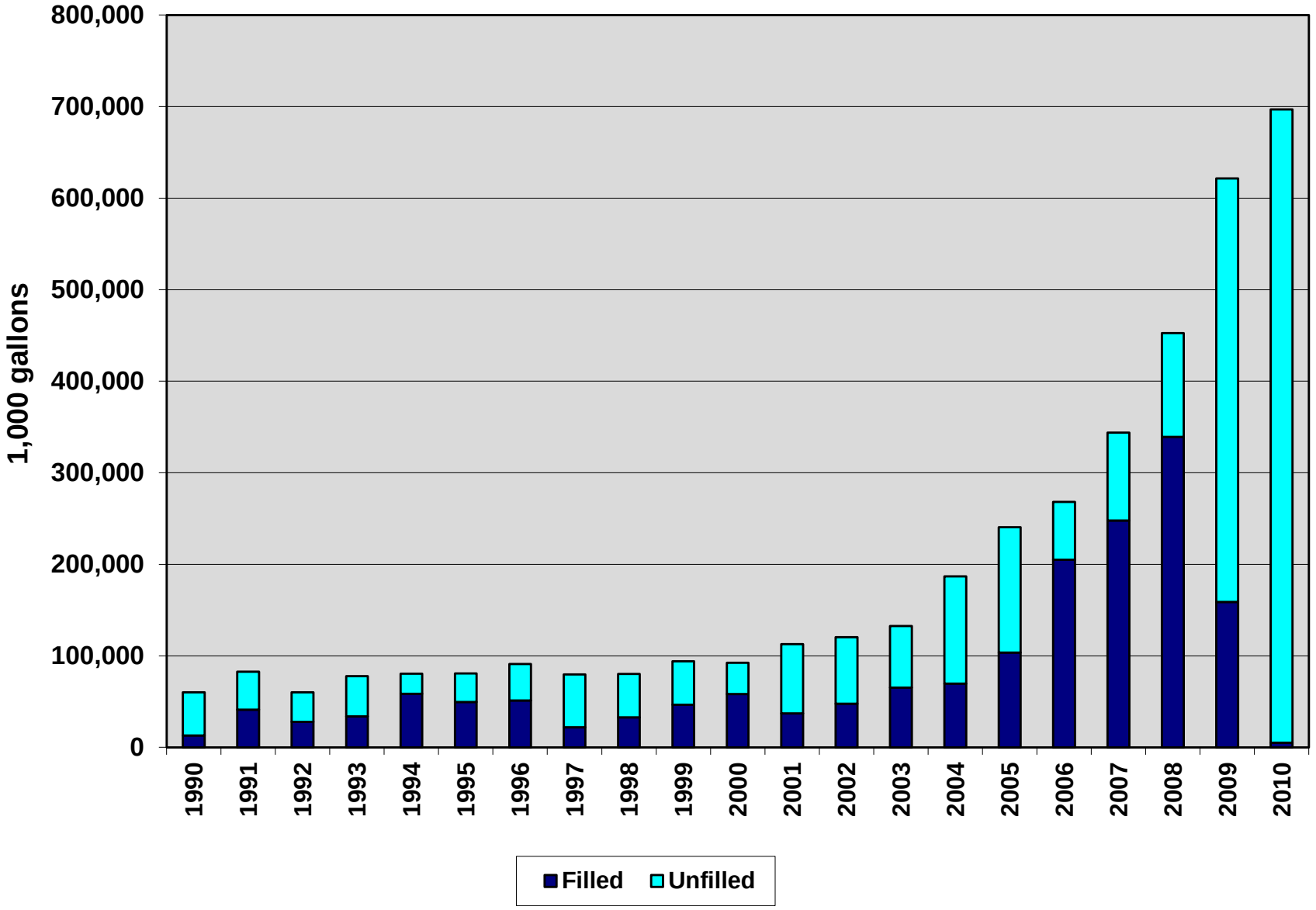


Source: EIA, CRS, TSUSA, HTS.

CBI Quota

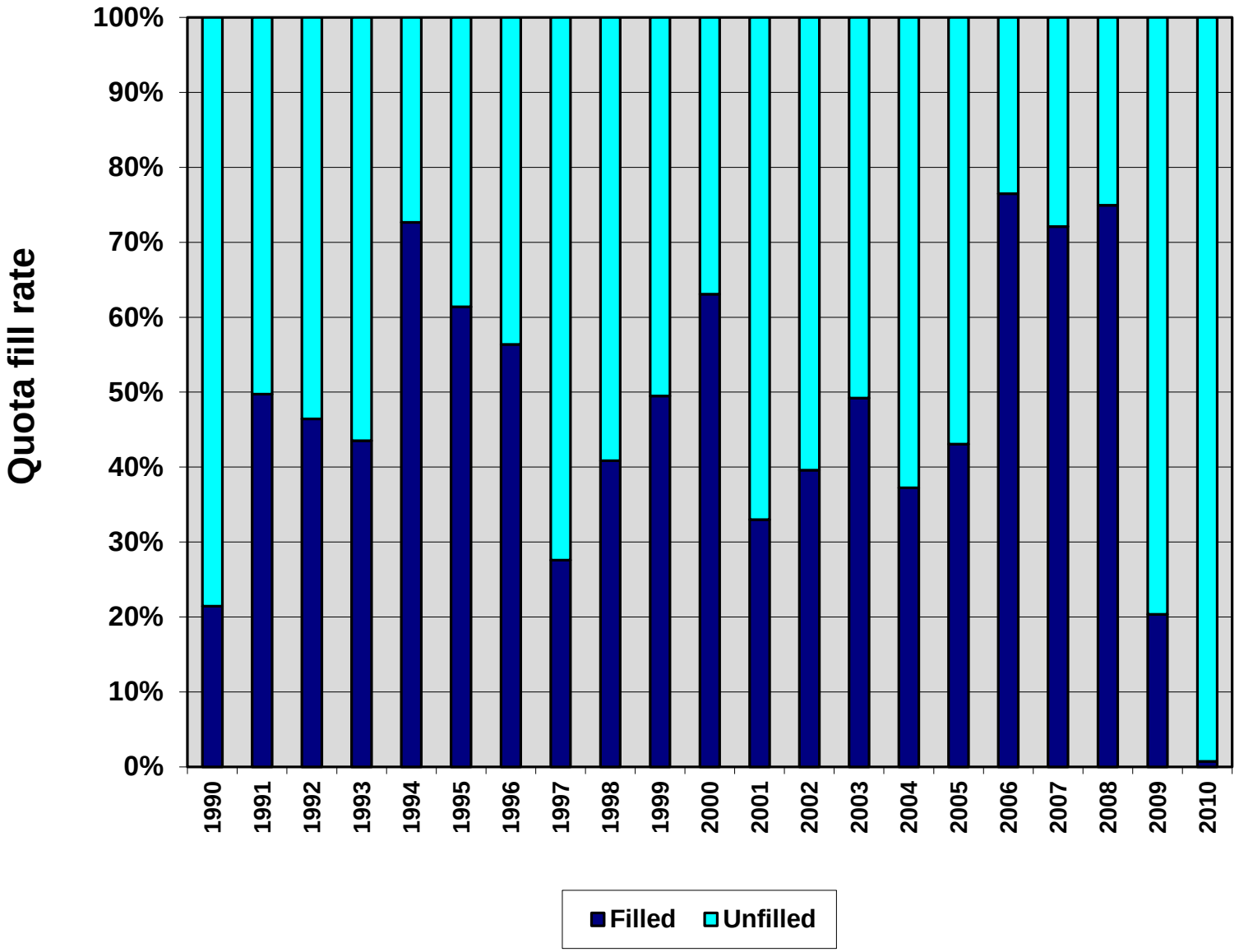
- **Has never been filled—highest fill rate 75 percent, less than 1% in 2010**
- **Pathway meets EPA GHG reduction requirements.**
- **ODC (duty) protects CBI dehydrators**
- **Price spread of about 45 cents/gallon between Brazilian hydrous and U.S. anhydrous is necessary to be profitable.**
- **Usually profitable during peak summer gasoline demand months in United States**
- **Shuttered since late 2009 owing to high feedstock costs, market price differentials**

U.S. fuel ethanol imports under the CBI quota, 1990-2010



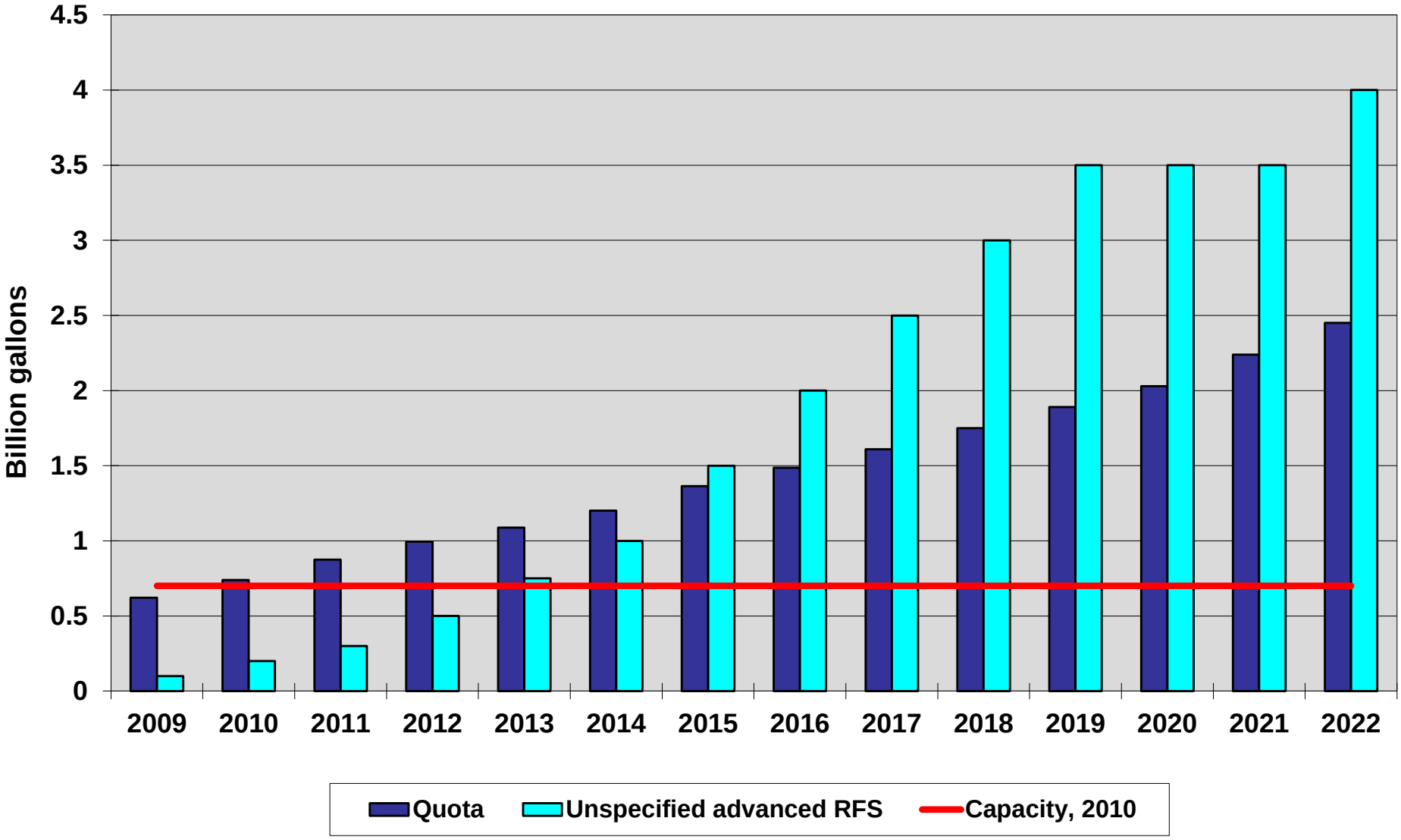
Source: Estimated by the USITC based on official statistics of the U.S. Department of Commerce; CBP.

U.S. fuel ethanol imports under the CBI quota, 1990-2010



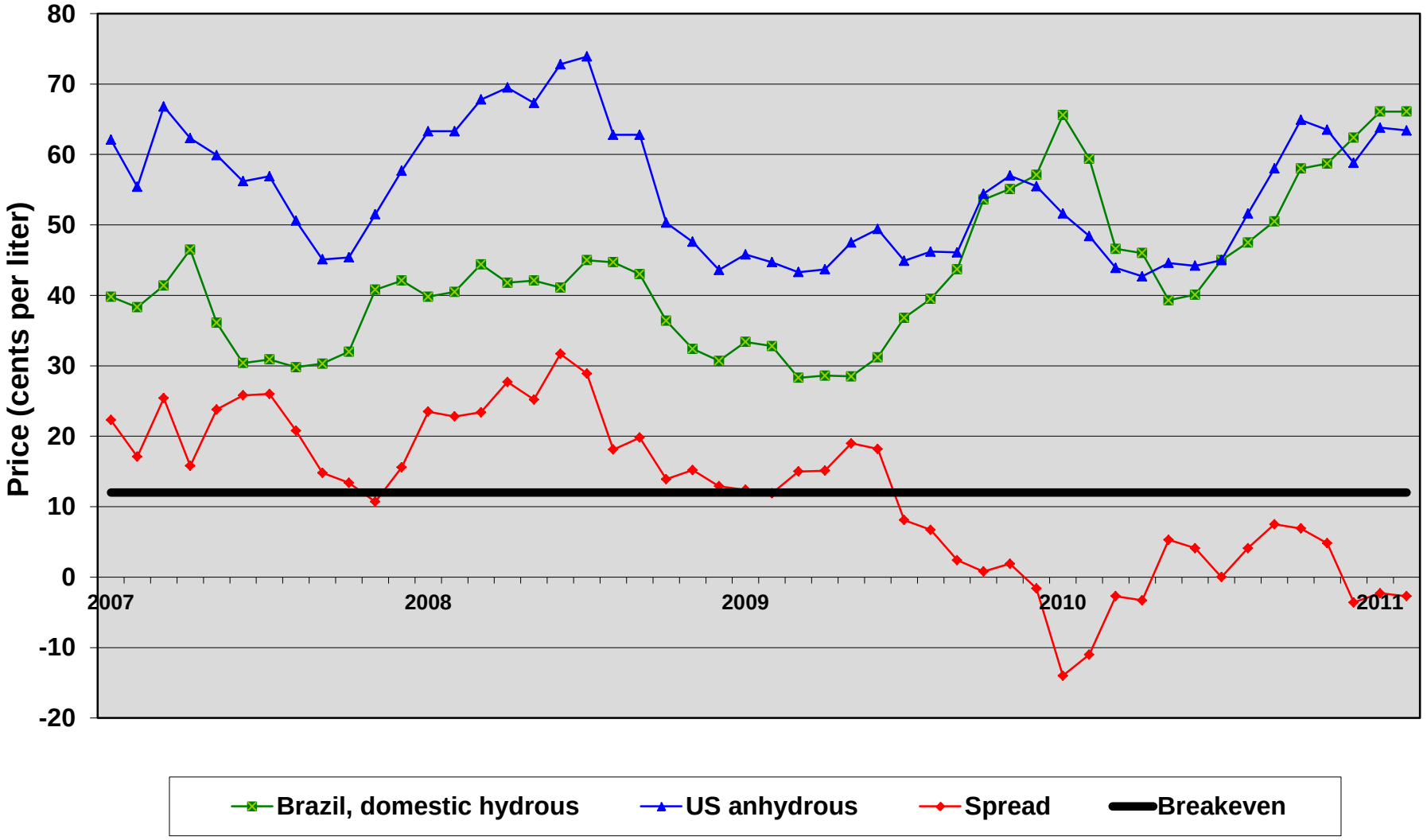
Source: Estimated by the USITC based on official statistics of the U.S. Department of Commerce; CPB.

Projected CBI Ethanol Dehydration Quota, 2009-2022



Source: USITC, calculated from RFS, industry estimates.

Rising Brazilian hydrous feedstock prices shut down CBI dehydrators in 2009



Note: Brazil: ex-mill, Sao Paulo; US: East Coast spot.

Source: LMC International; industry sources.

WTO

- **ODC**
  - **Brazil periodically refers to possible DSB case against the U.S. ODC (54 cents/gallon).**
  - **U.S. government notified the ODC under the GATT; Brazilian government acknowledged.**
  - **U.S. government bound the ODC at the current level in the WTO Uruguay Round in 1994.**

- **Technical Barriers to Trade (TBT)**
  - **Sustainability criteria under the RFS2, LCFS**
  - **Feedstock restrictions, iLUC**

- **Subsidies**
  - **U.S. notifies the Alcohol Tax Credit (VEETC) and the Biodiesel Tax Credit to the WTO. These represent foregone revenues rather than direct outlays.**

U.S. biofuel notifications to the WTO Committee on Subsidies and Countervailing Measures

Item	FY2005	FY2006	FY2007	fY2008
	Million dollars			
Alcohol fuel credit	1,540	2,620	3,360	4,460
Biodiesel and renewable diesel credit	30	90	750	1,218
Total	1,570	2,710	4,110	5,678

Note: Data represent foregone tax revenues rather than direct outlays.

Source: U.S. government WTO notifications G/SCM/N/155/USA and G/SCM/N/186/USA, available at http://docsonline.wto.org/gen_search.asp?searchmode=simple.

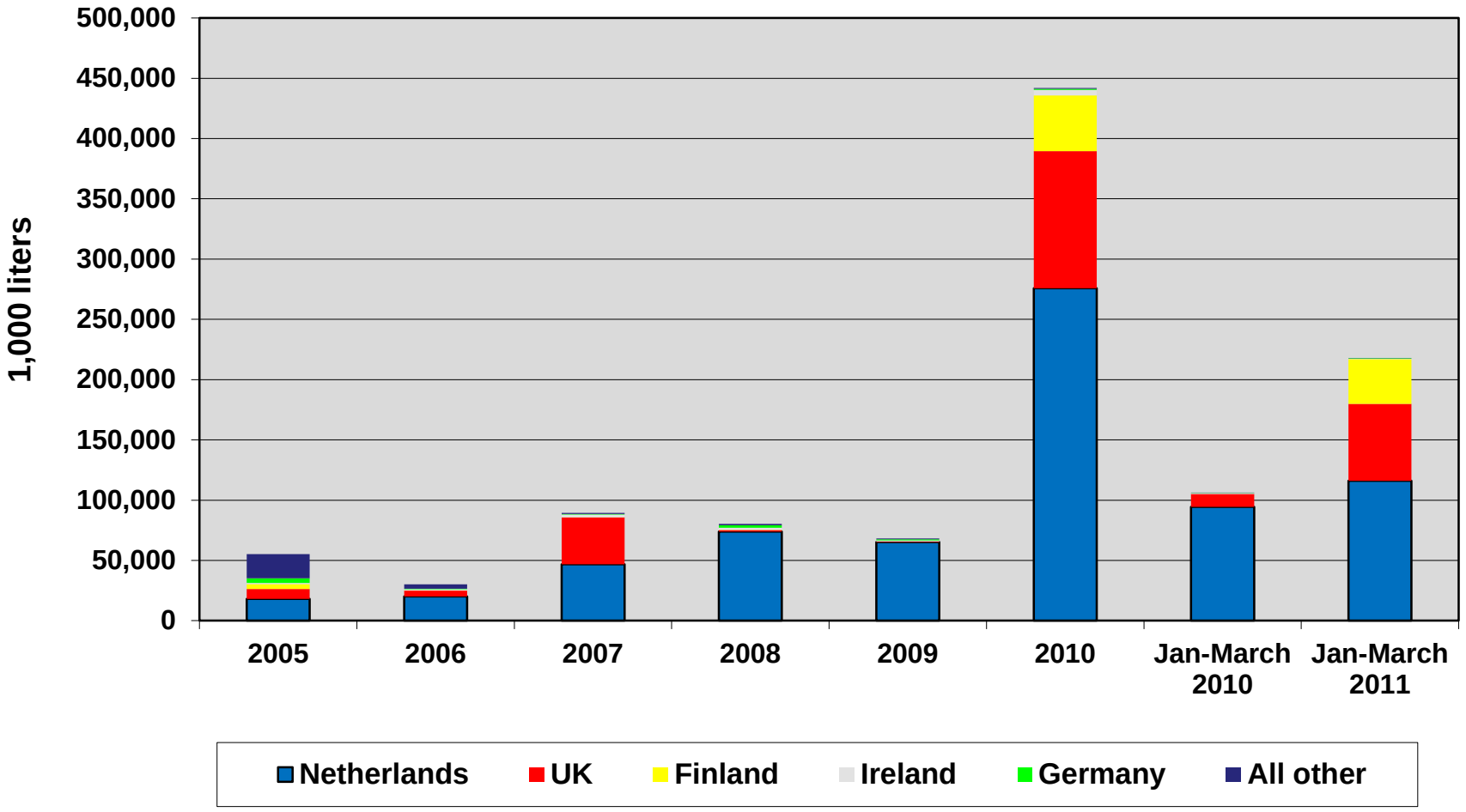
Exports

- **U.S. exports of ethanol to EU increased dramatically during 2009-2010.**
- **Reports of U.S. E90 exports benefiting from VEETC.**
- **Data inconsistencies. U.S. exporters believed to be mixing on the water and/or classifying E90 in Schedule B subheading 2207.20.**
- **Customs classification issue; product specification issue. When does denatured ethanol in chapter 22 become a chemical product in chapter 38? What is E85 (Sweden PCC)? DG Tax is investigating.**
- **Possible EU AD/CVD case on ethanol.**
- **VEETC and Biodiesel Tax Credit amended as of October 1 2008 to prohibit tax credits for imported biofuel in exports of biofuel blends; tax credits still apply to exports of fuel blends containing domestically-produced biofuels.**
- **China antidumping case on U.S. exports of DDGS. China discourages use of domestic corn for biofuel production, substantially increased imports of U.S. corn in 2010 (likely for starch/ethanol owing to GMO issue), increased own production of DDGS.**

U.S. ethanol export issue

- **HS heading 2207 provides for "ethyl alcohol, and other spirits, denatured, of any strength."**
- **HS subheading 2710.11 specifically provides for fuel mixtures containing at least 70 percent petroleum oils, by weight.**
- **HS subheading 3824.90.9290 could provide for ethanol fuel mixtures between E30 and E93?**
- **HSC (WCO) meeting—no consensus. Some informal consensus that less than 93% ethanol is the dividing line between chapter 22 and chapter 38.**
- **EU ethanol association (ePURE) position is that any denatured ethanol is classified in chapter 22 until petroleum weight reaches 70%.**
- **ASTM specifies maximum of 2.5% denaturant, minimum of about 92% ethanol for denatured fuel ethanol standard (D4806).**
- **IRS VEETC denaturant level limit to about 2% (up to 2.5% for rounding).**
- **IRS proposed regulation requires additional 0.1% gasoline to qualify for VEETC**
- **EPA allows 2% (2.44% for rounding) denaturant to count toward RFS mandate**
- **EU Binding Tariff Informations (BTIs)—Chapter 38 classification for mixtures as low as E93. UK, Netherland, Sweden, Finland.**
- **EU specifications—differ by member state, end use.**

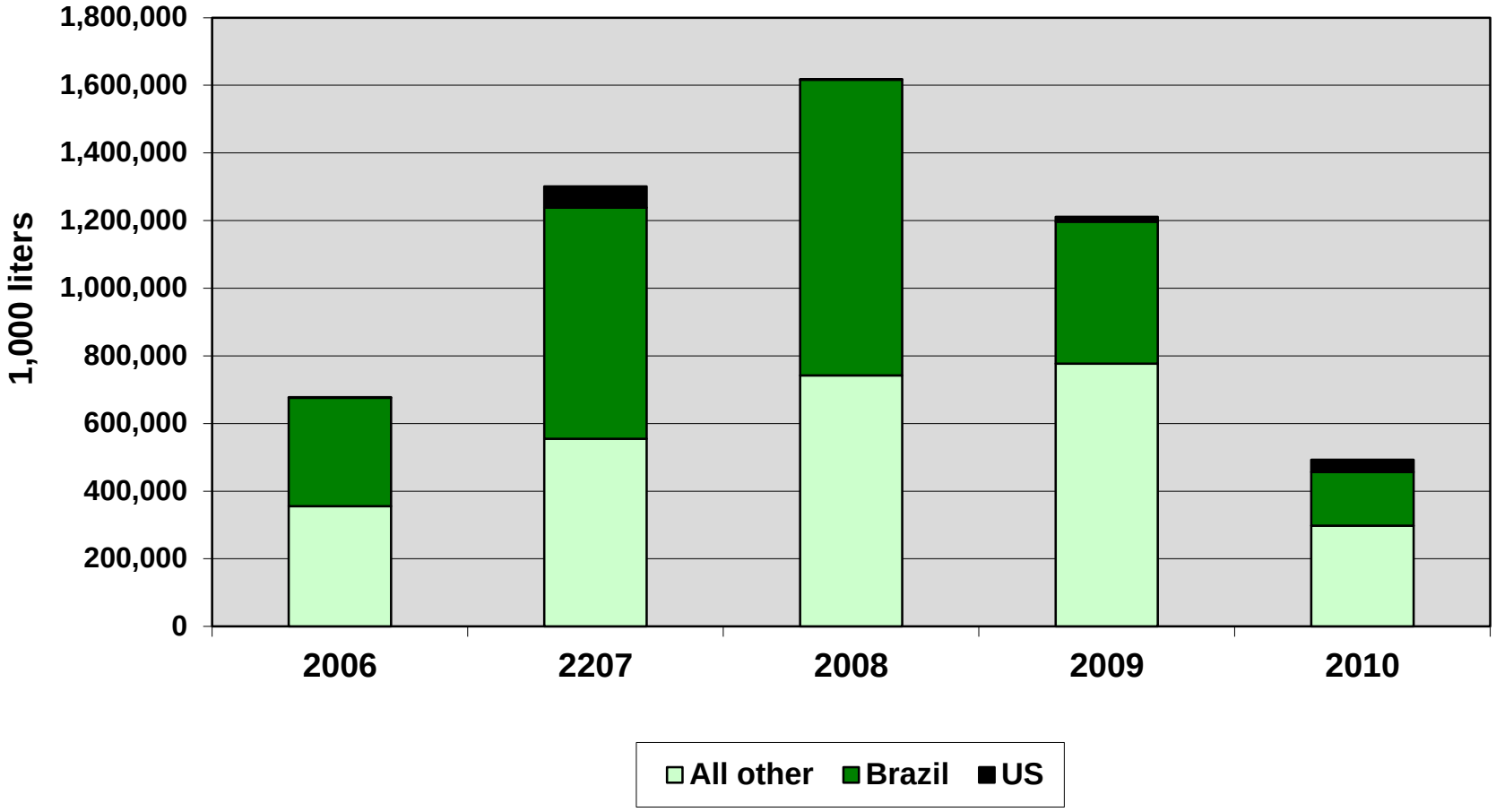
U.S. exports of nonbeverage ethanol to the EU, by market, 2005-2010, Jan.-March 2010 and Jan.-March 2011



Source: Compiled from official statistics of the U.S. Department of Commerce.

Note: Schedule B subheadings 2207.1060 and 2207.20

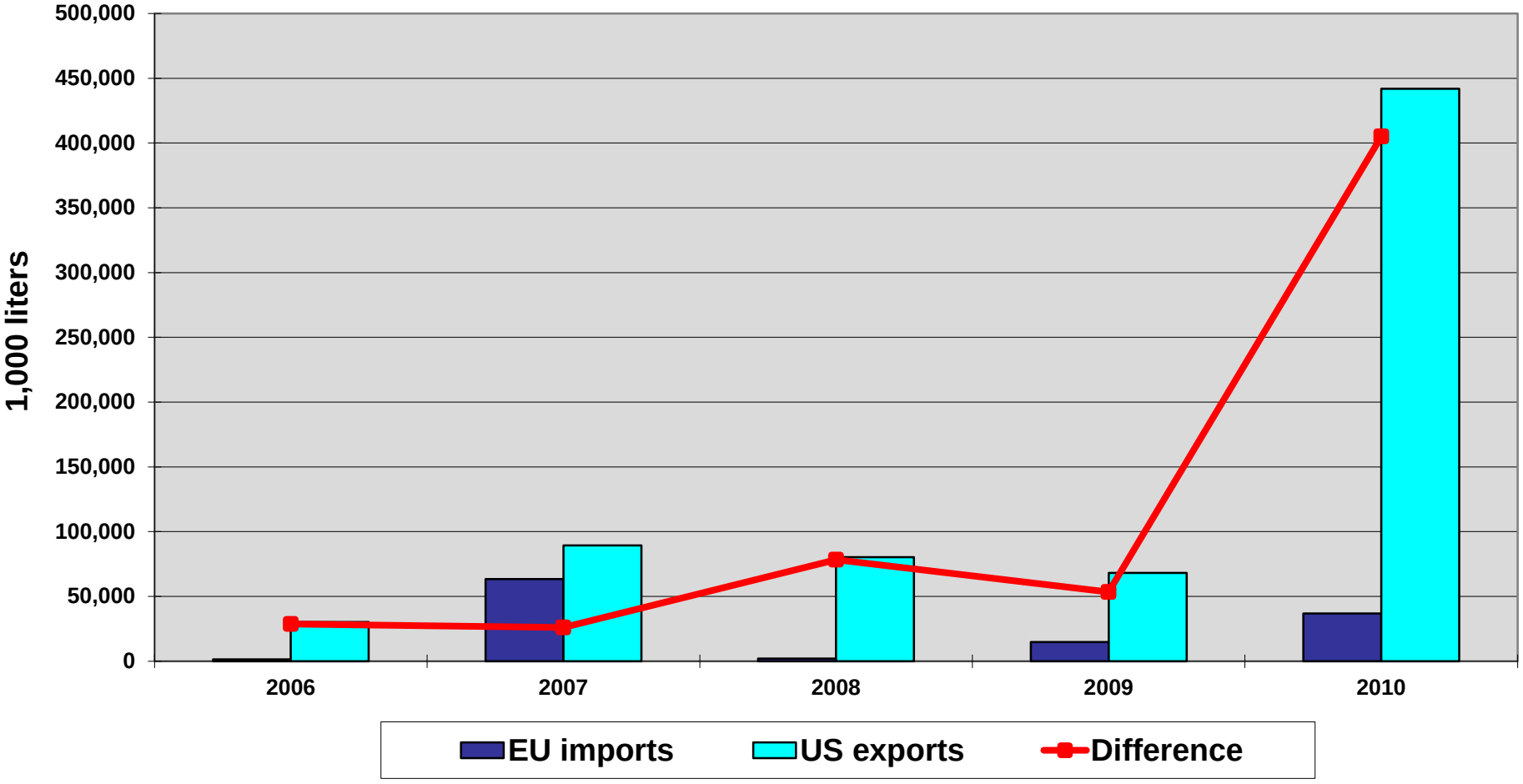
EU imports of non-beverage ethanol, by source, 2006-2010



Source: GTIS, Global Trade Atlas.

Note: Includes HS subheadings 2207.10 and 2207.20.

Data discrepancy in U.S.-EU trade in nonbeverage ethanol, 2006-2010



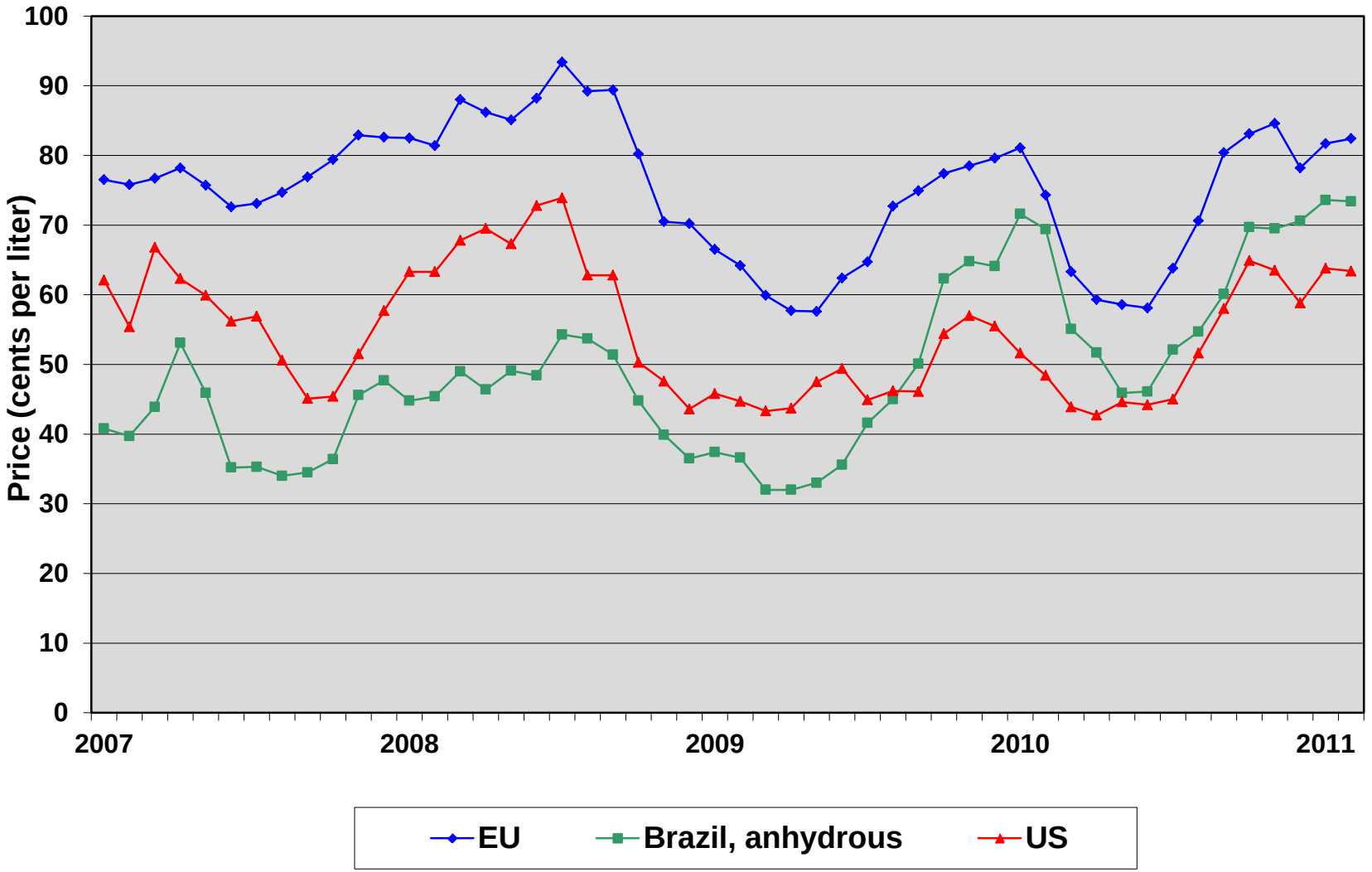
Source: EU: GTIS, Global Trade Atlas; U.S.: Compiled from official statistics of the U.S. Department of Commerce.

Note: Includes HS subheadings 2207.10 and 2207.20.

Situation in Brazil

- **Infrastructure/financing issues have slowed expansion.**
- **Higher cost producer than US.**
- **Exchange rates—strong real vis-a-vis dollar and euro.**
- **Continued consolidation.**
- **Focus on domestic market, continued growth in flex-fuel fleet.**
- **Sugar exports still more profitable.**
- **Exports diminished; will continue to import this year**
- **Unlikely to have surplus stocks in near term.**
- **Regulation of ethanol market by the National Petroleum Agency (ANP).**

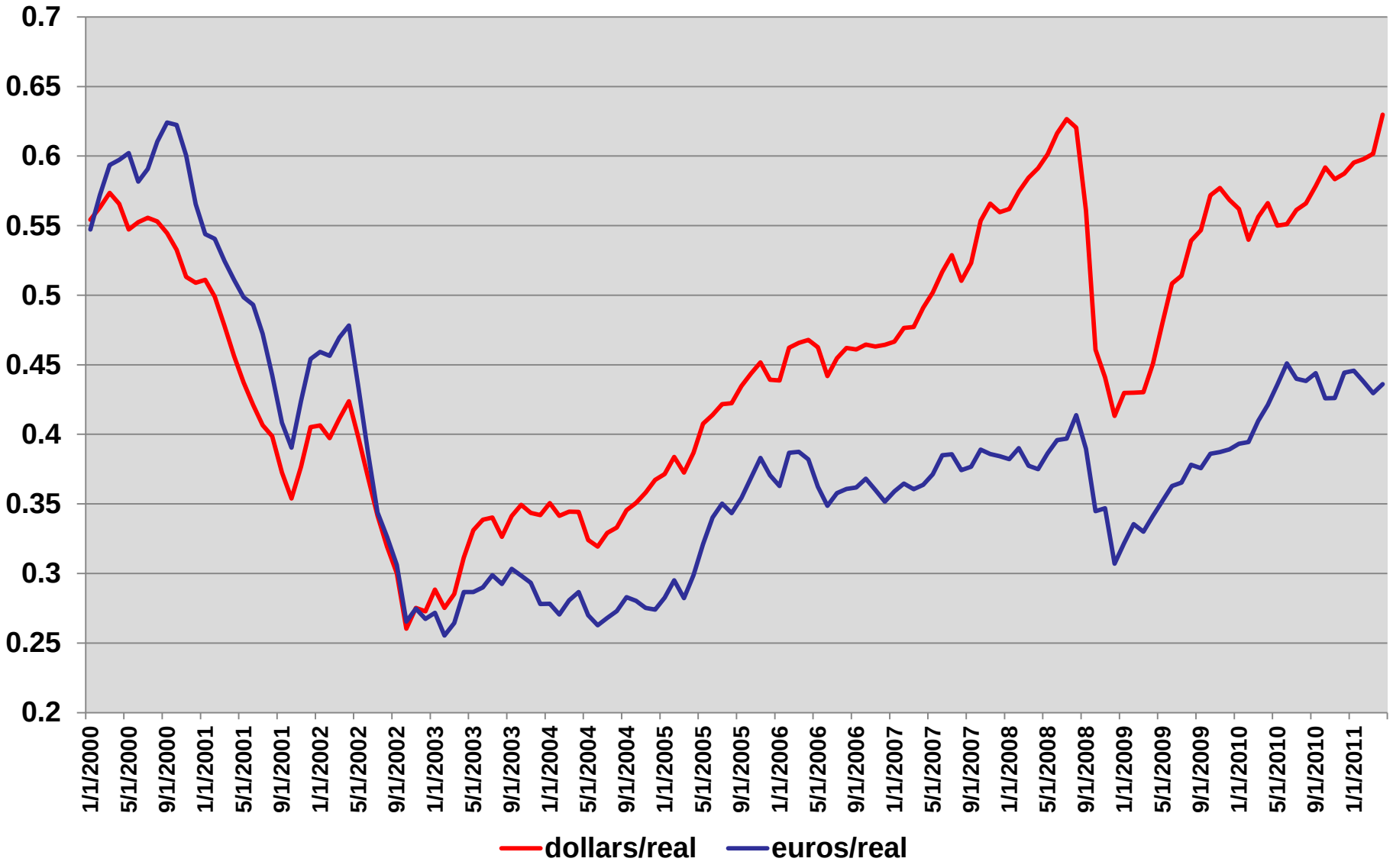
Nonbeverage ethanol prices, by market, January 2007-February 2011



Note: EU: fob Rotterdam, T2; Brazil: ex-mill, Sao Paulo; US: East Coast spot.

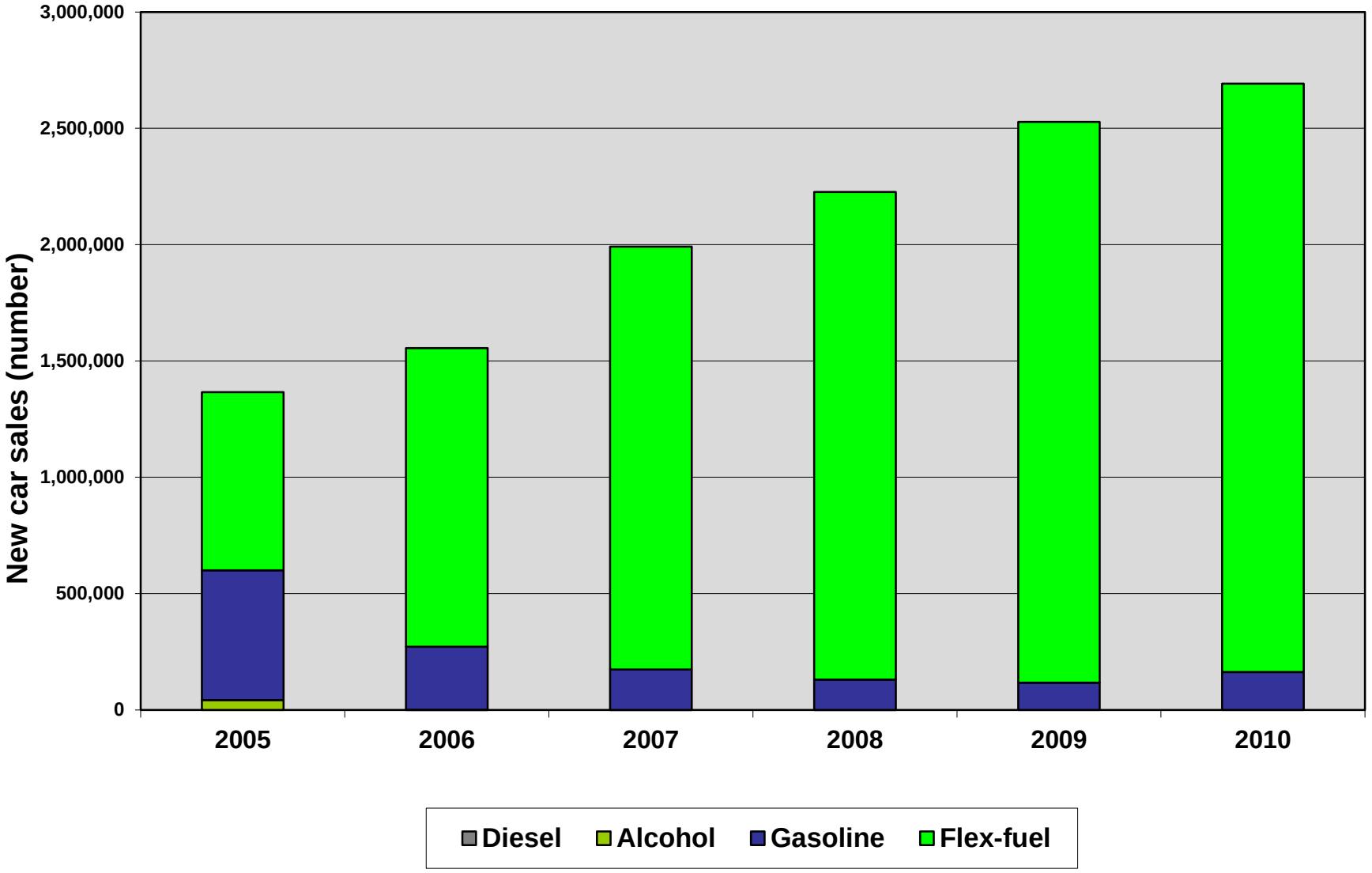
Source: LMC International.

Brazilian exchange rates, 2000-2011



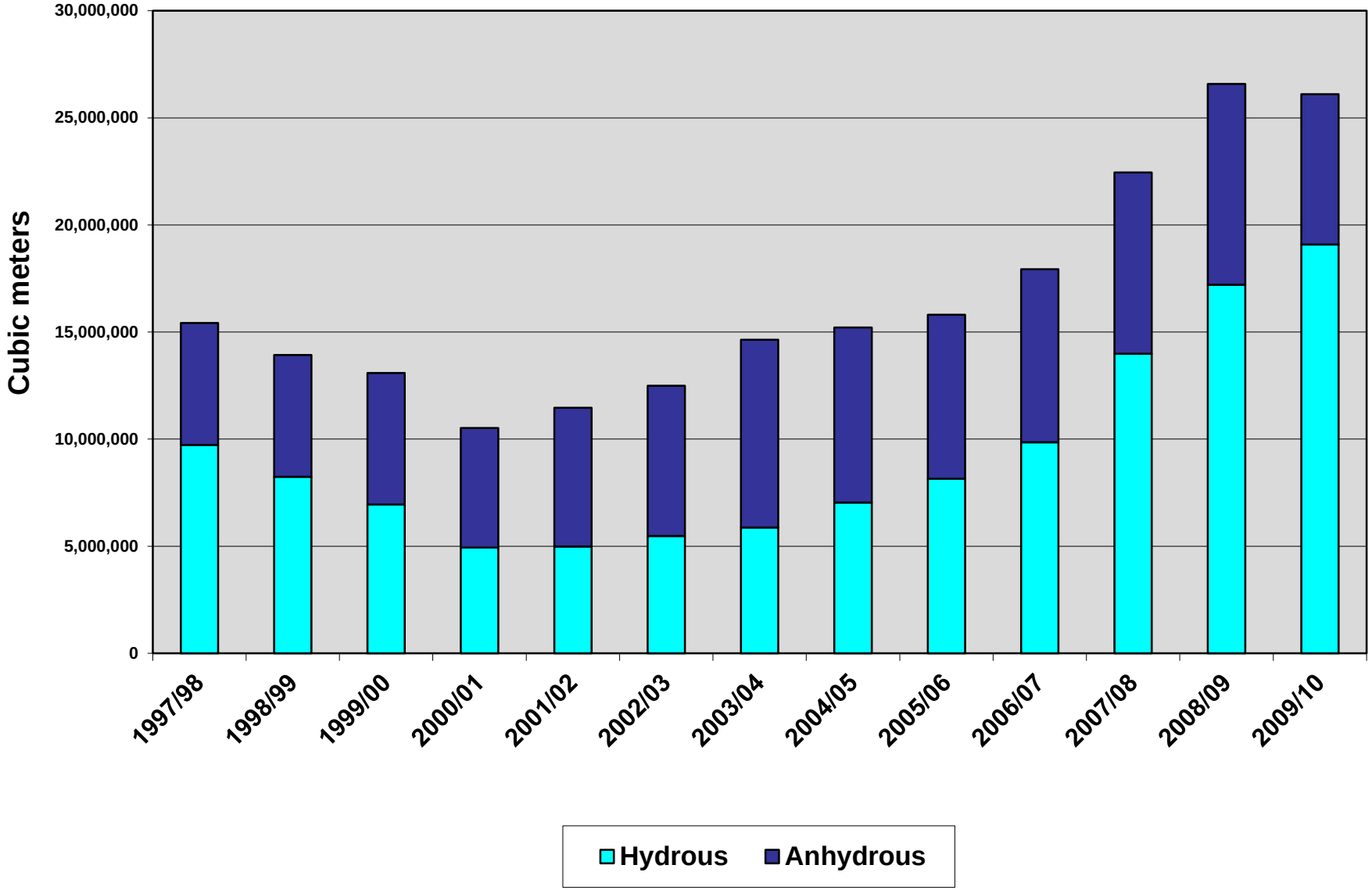
Source: OANDA, available at http://www.oanda.com/currency/historical-rates/.

Brazilian new car sales, by engine type, 2005-2010



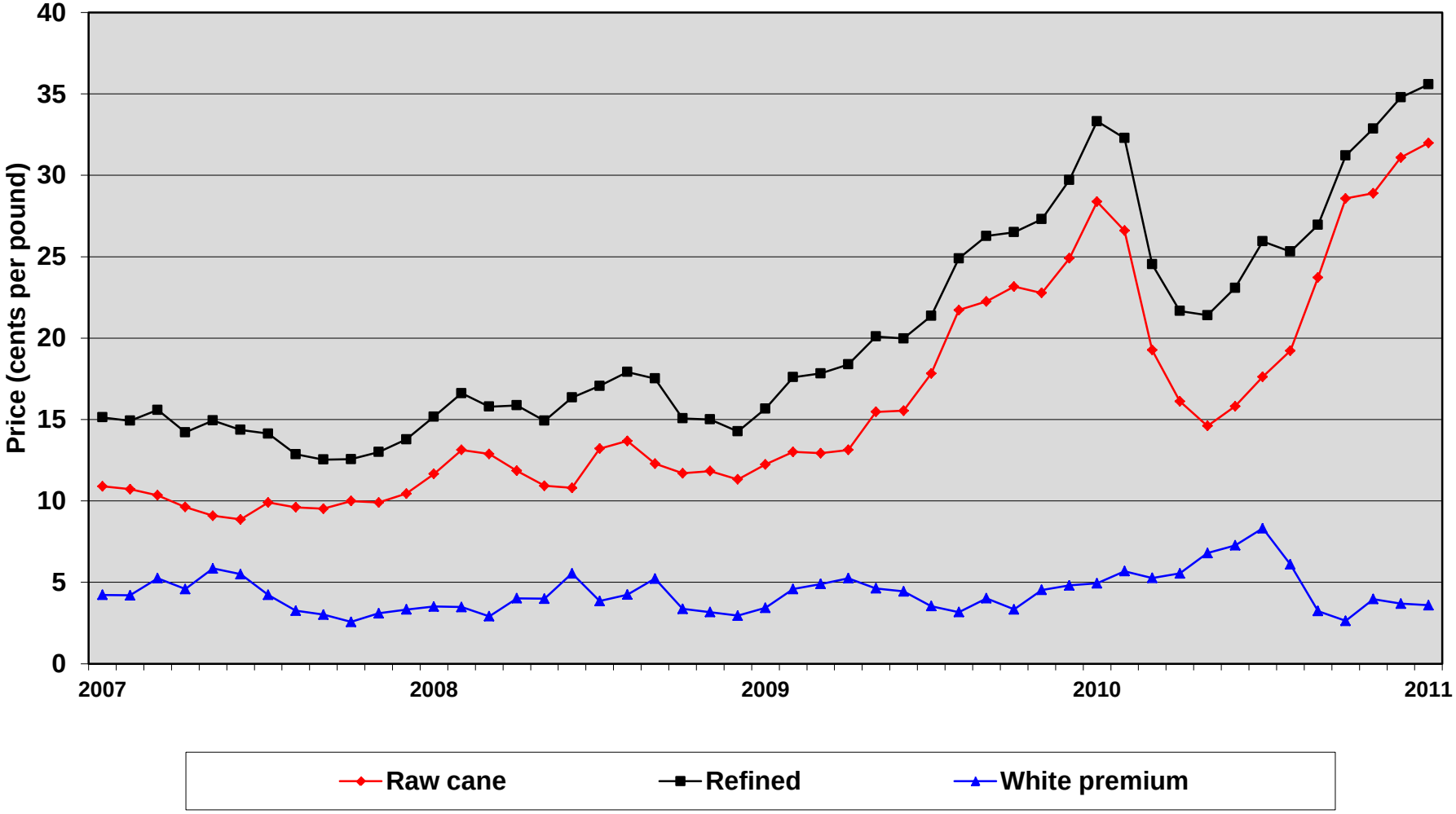
Source: ANFAVEA.

Brazilian ethanol production, by type, 1997/98-2009/10



Source: MAPA

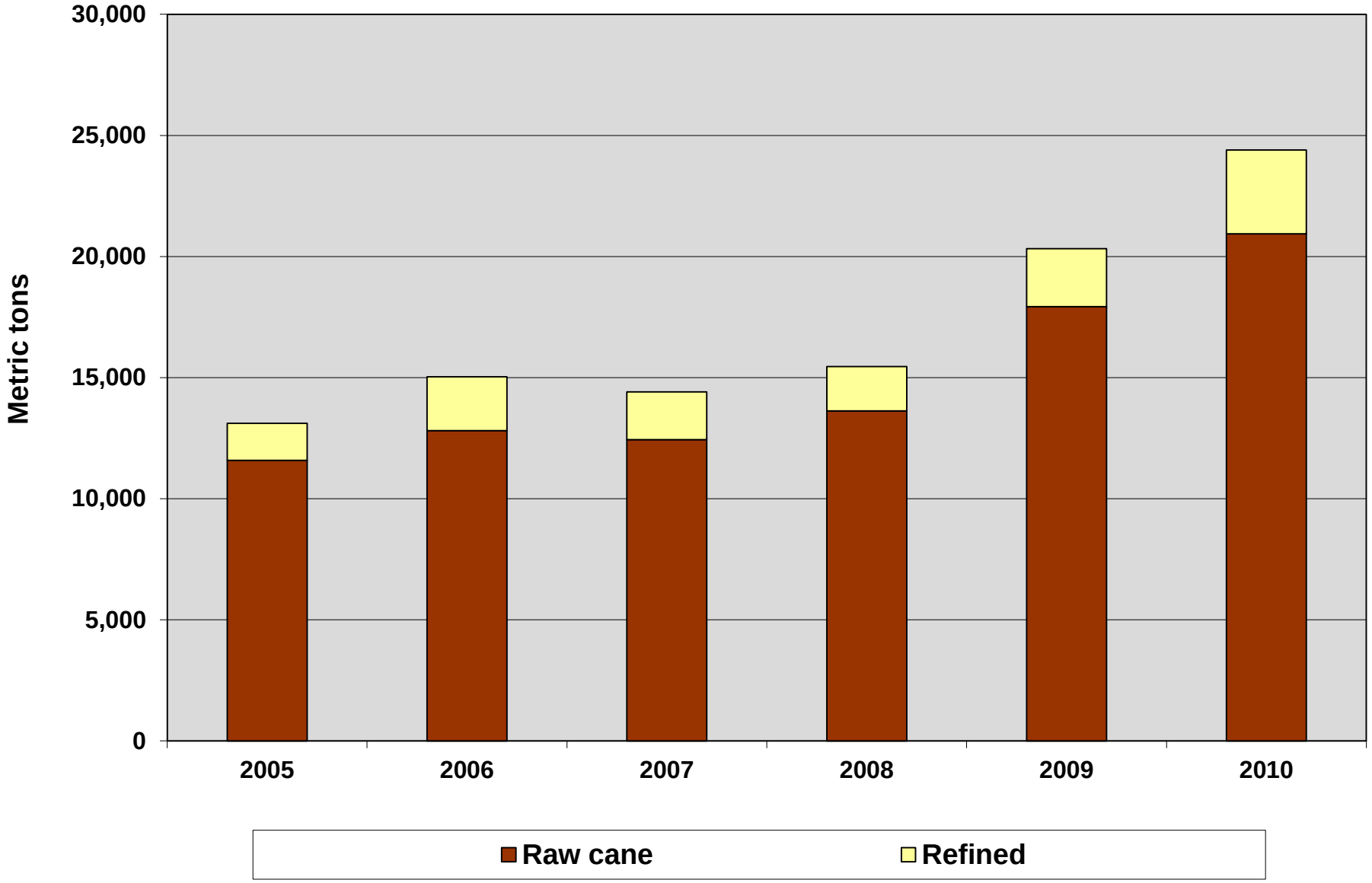
World sugar prices, by type, January 2007-February 2011



Note: Raw cane: ICE contract No. 11, nearby futures; refined: London Daily Price, Contract No. 407 (a.k.a. No. 5), fob Europe.

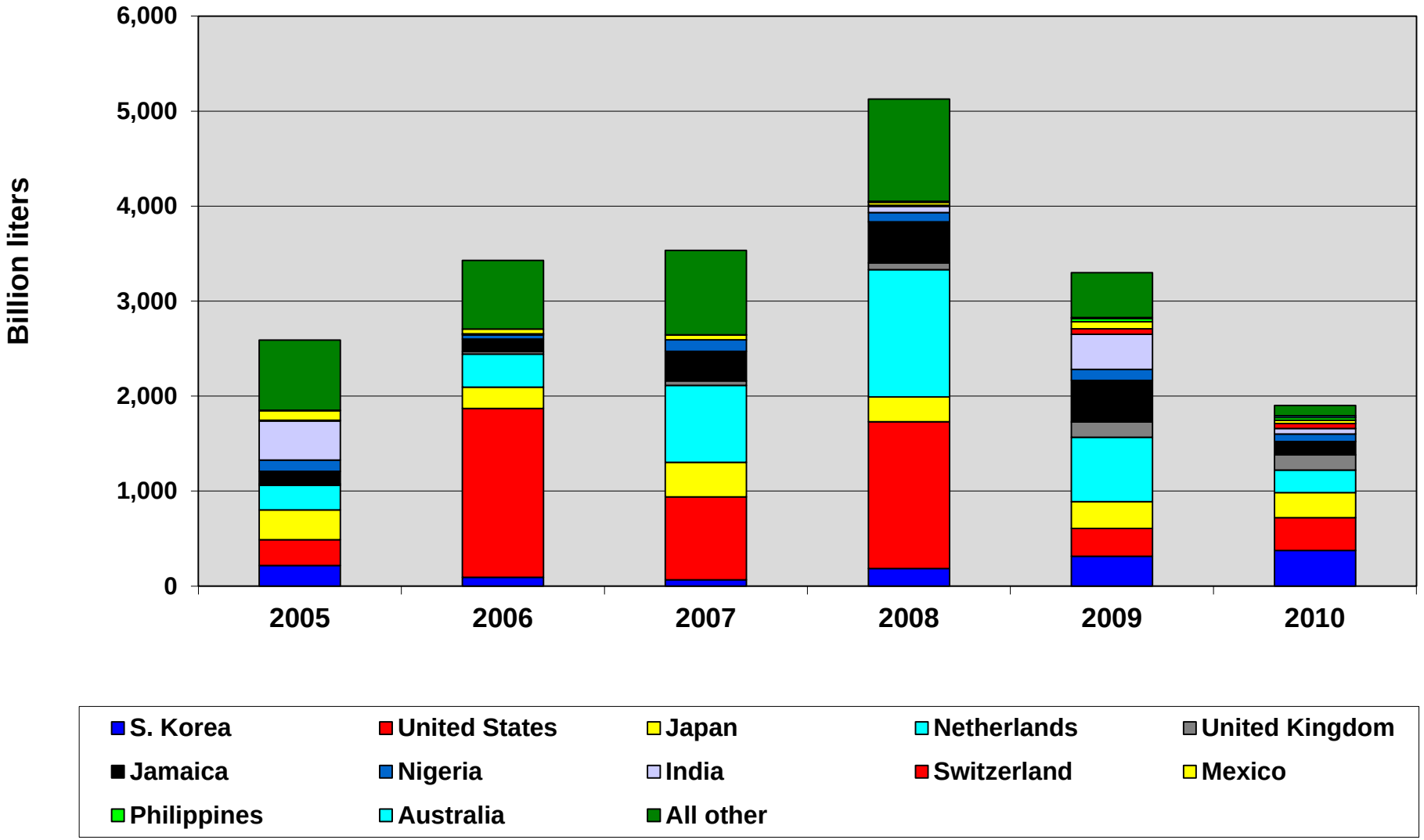
Source: USDA, ERS.

Brazilian sugar exports, by type, 2005-2010



Source: GTIS, Global Trade Atlas.

Brazilian exports of ethanol, by market, 2005-2010



Note: Includes all ethanol (beverage, industrial, and fuel).

Source: LMC International.

Summary of U.S. policy issues

- **Fragmentation of U.S. policies: RFS, LCFS, VEETC, ODC, CBI**
- **Key U.S. policy elements are temporary and subject to frequent challenge, change, or elimination**
- **Vigorous debate in Congress on the future of U.S. ethanol policy**
- **Slow progress commercializing 2nd generation (cellulosic)**
- **Blend wall remains a concern**
- **Policy uncertainty affects the perception of risk for investors**
- **Carbon concerns likely will join tariff and subsidy issues in future global market access considerations**

Summary of current global market issues

- **Carbon is driving policies worldwide**
- **Questions about attainability of goals within current timeframes**
- **Continued need for government involvement**
- **Domestic and trade policies affect investment and trade**
- **Controversy remains as food and energy markets become more integrated, impact on land use difficult to measure, weather volatility increases uncertainty**

Prospects

- **RFS2 may need to be restructured to account for cellulosic/biodiesel shortfalls in the near to mid term**
- **E15 will take time—law suits, infrastructure cost**
- **Blend wall will continue to be a concern in near to mid term**
- **VEETC and ODC may be phased down/out**
- **CBI dehydration industry uncertainty**
- **Increasing consolidation and integration by refiners in US and Brazil**
- **EU environmental requirements likely will affect future U.S. and Brazilian exports**
- **Market growth in Asia, especially China, could put increasing pressure on feedstocks (corn, wheat) and ethanol supplies**
- **Increasing number of countries with ethanol markets**
- **Markets will reward low carbon intensity (California, EU)**
- **Leapfrog from 2nd generation to 3rd generation biofuels?**

Challenges

- **Policy coordination both within and among markets**
- **Technological constraints**
- **Increasing complexity and expense of regulatory compliance**
- **Public perception/political impact**

Thank You!