U.S. Biofuels Policy at the Federal and State Levels

Washington Dialogue Series

Trade and Climate Change: Development Aspects of Climate Change Policies of OECD Countries

May 5, 2009

Washington, DC

Doug Newman

International Trade Analyst

U.S. International Trade Commission

500 E St. SW

Washington, DC 20436

202-205-3328

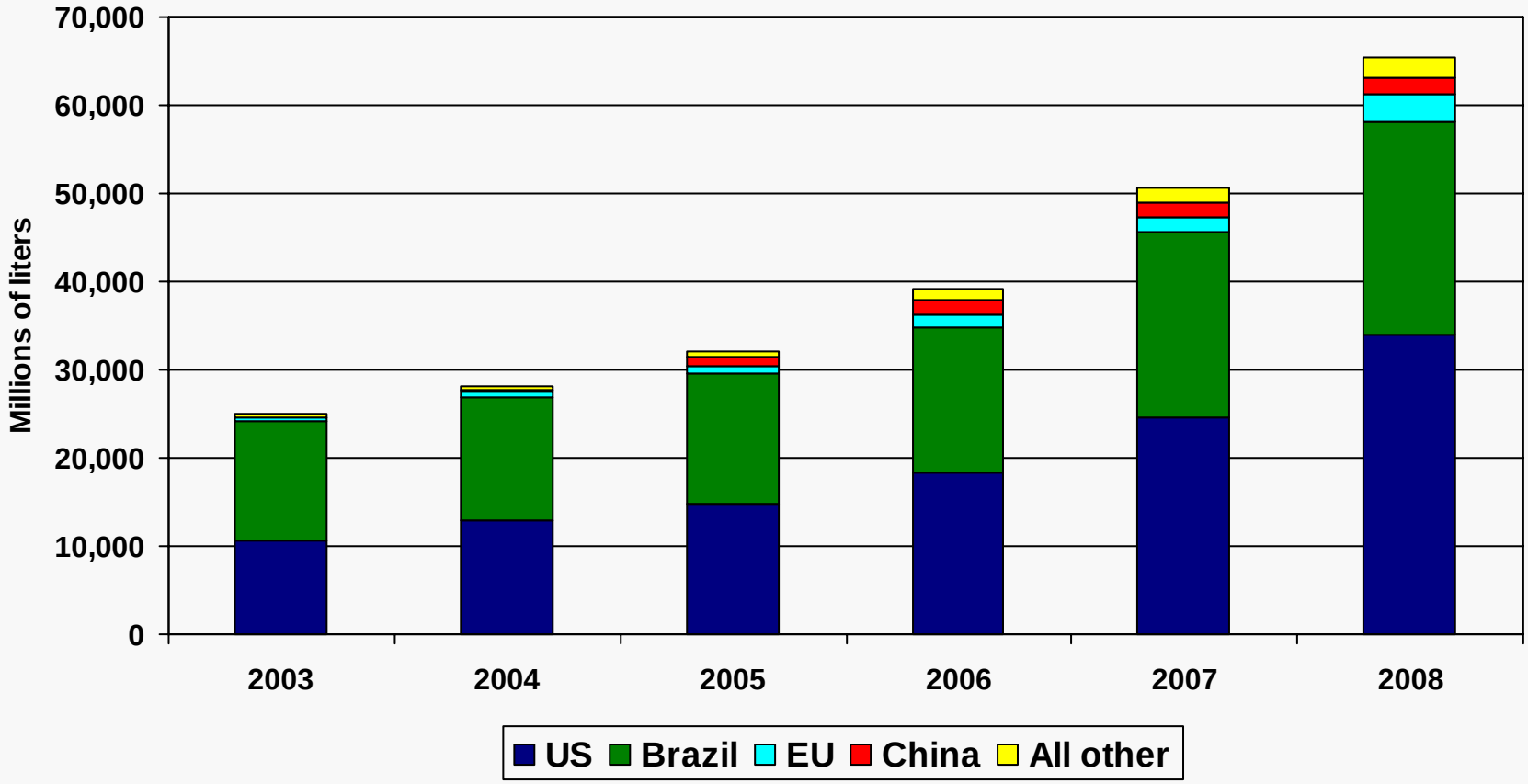
douglas.newman@usitc.gov

Road Map

- **Market overview**
- **Policy elements**
- **Trade implications**
- **Future considerations**

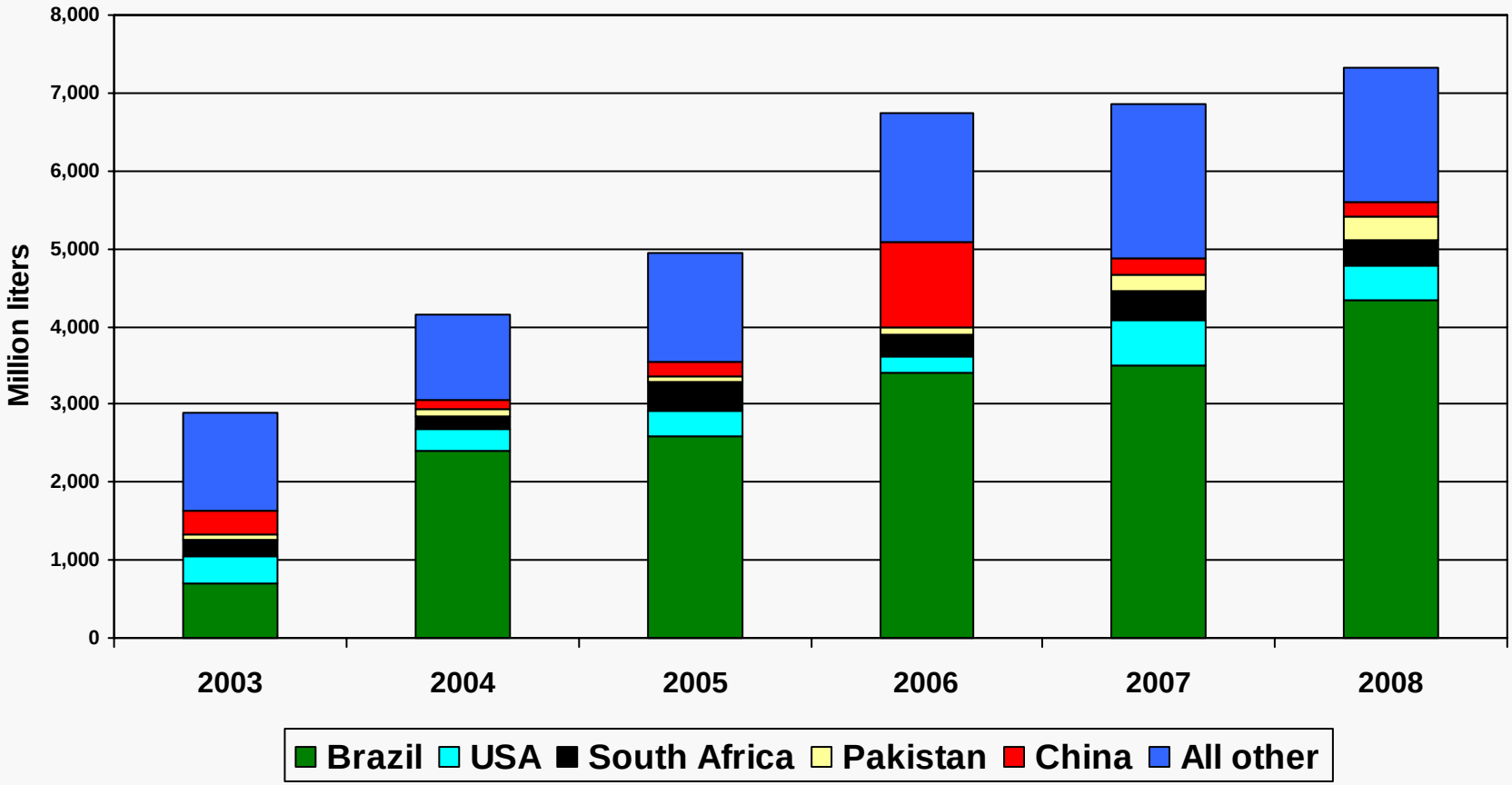
Market Overview

Global fuel ethanol production, by major sources, 2003-2008



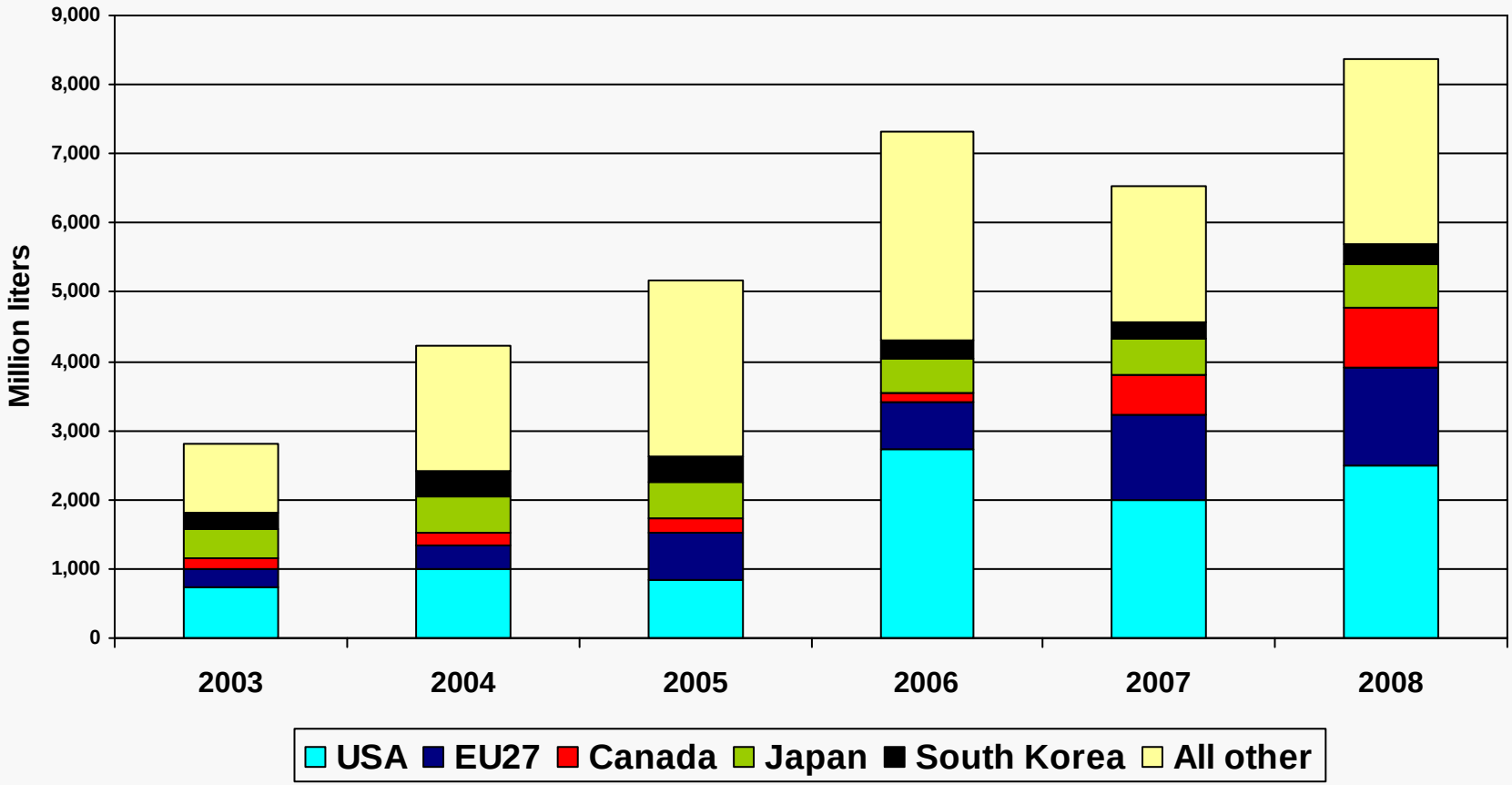
Source: LMC International

Global ethanol exports, by principal sources, 2003-2008



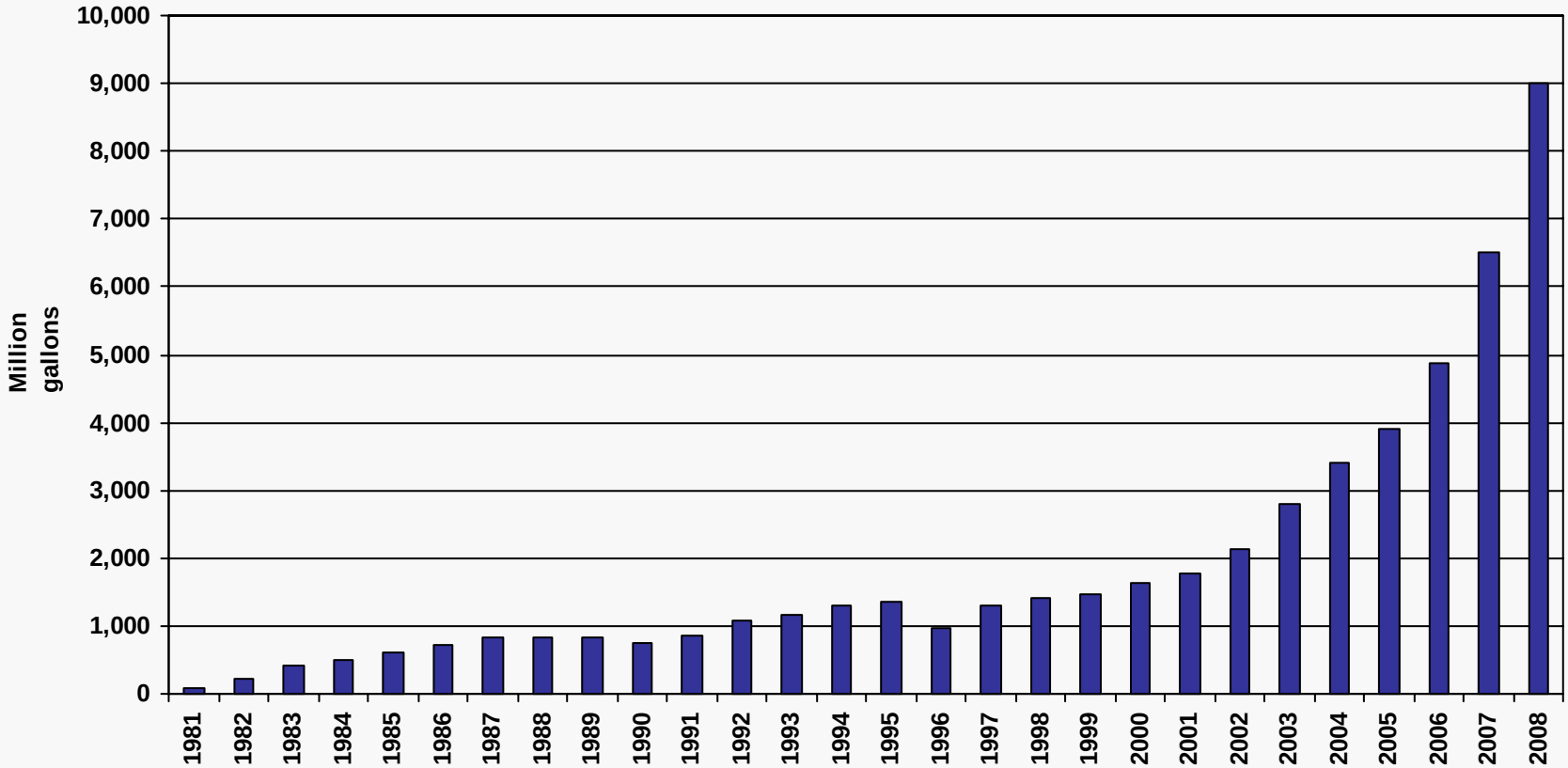
Source: LMC International

Global ethanol imports, by principal markets, 2003-2008



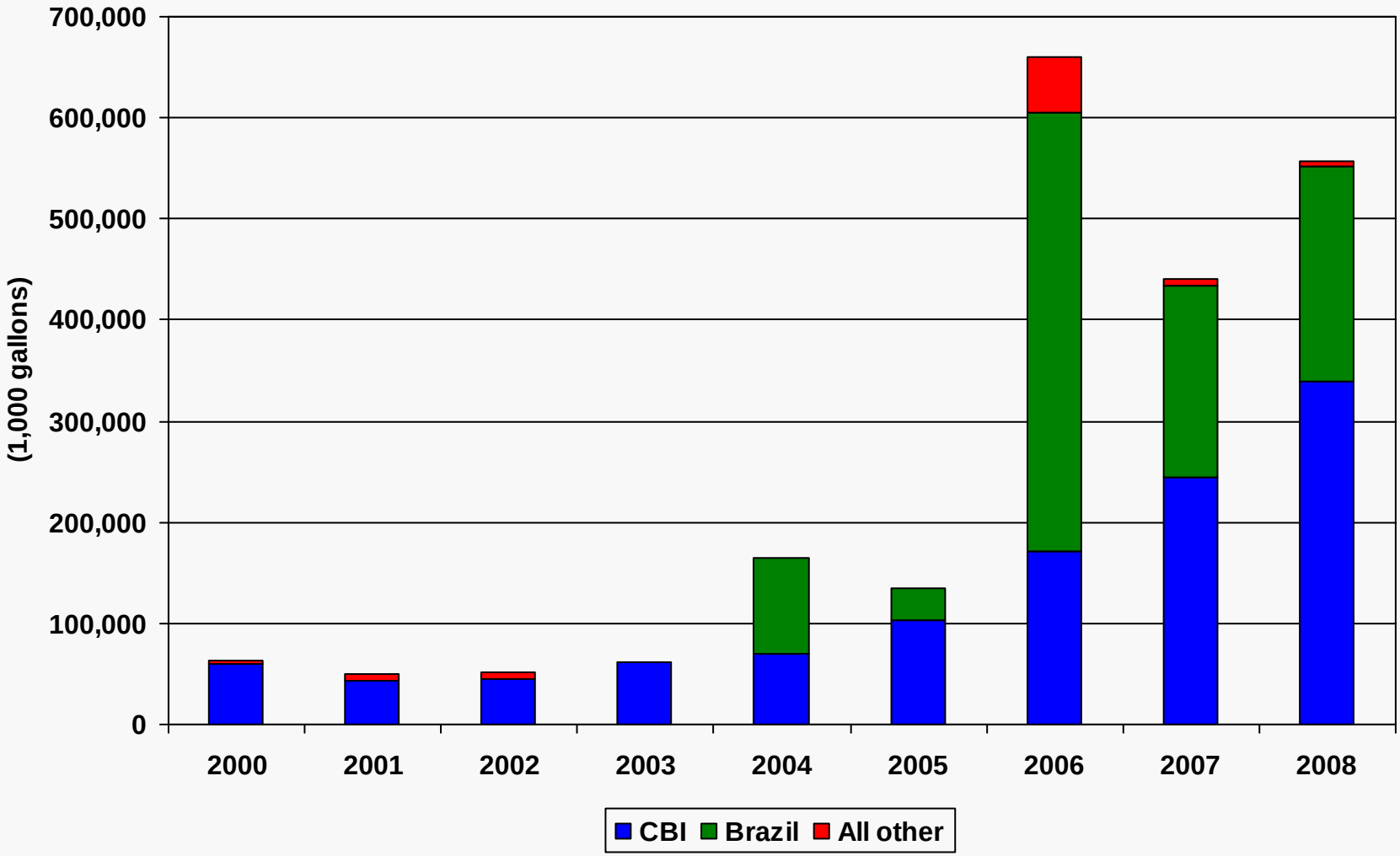
Source: LMC International

U.S. fuel ethanol production, 1981-2008



Source: EIA.

U.S. fuel ethanol imports, by principal sources, 2000-2008



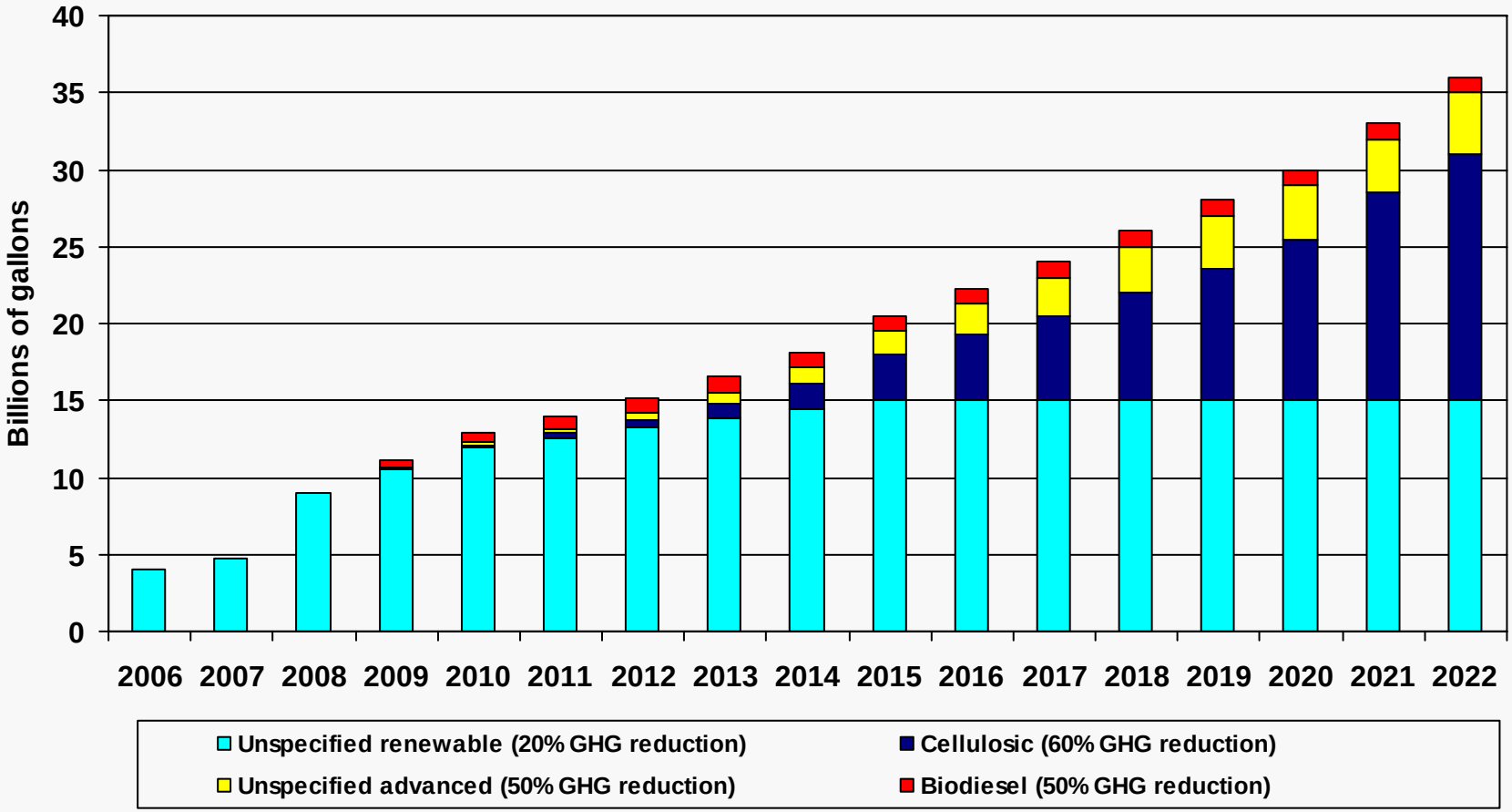
Source: USITC

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)**
  - **California Executive Order S-06-06**
  - **California Executive Order S-07-07**

- **Major policy elements**
  - **Renewable Fuel Standard (RFS)**
  - **Volumetric Ethanol Excise Tax Credit (VEETC)**
  - **Federal and State R&D grants and loan guarantees, infrastructure grants, State mandates and tax credits, cellulosic producer tax credit, small producer tax credit**
  - **California State Bioenergy Action Plan**
  - **California Low Carbon Fuel Standard (LCFS)**
  - **Northeast and Mid-Atlantic Low Carbon Fuel Framework**

U.S. Renewable Fuel Standard, 2006-2022



Source: EPA, EISA

Note: Data for 2006 and 2007 represent the Renewable Fuel Program.

VEETC

- Credit against federal excise tax on gasoline sales
- Provided to refiners and blenders, not producers
- Applies both to domestic and imported ethanol
- Currently 45 cents/gallon (4.5 cents/gallon for E10)
- Expires at the end of 2010

California State Bioenergy Action Plan

- Produce a share of renewable biofuels within California
- Biofuels include ethanol and biodiesel
- 20 percent of consumption by 2010
- 40 percent of consumption by 2020
- 75 percent of consumption by 2050

California Low Carbon Fuel Standard

- Reduce carbon intensity of transportation fuels by at least 10 percent by 2020
- Applies to refiners, blenders, producers, and importers
- Compliance schedule begins in 2011
- Results in increasing ethanol blend from 5.7% to 10%
- 600 million gallons/year increase in ethanol demand

CA LCFS Draft Compliance Schedule

Year	Gasoline		Diesel	
	Carbon intensity (gCO2e/MJ)	% Reduction	Carbon intensity (gCO2e/MJ)	% Reduction
2010	Reporting only	-	Reporting only	-
2011	95.61	0.25	94.47	0.25
2012	95.34	0.5	94.24	0.5
2013	94.89	1.0	93.76	1.0
2014	94.41	1.5	93.29	1.5
2015	93.45	2.5	92.34	2.5
2016	92.50	3.5	91.40	3.5
2017	91.06	5.0	89.97	5.0
2018	89.62	6.5	88.55	6.5
2019	88.18	8.0	87.13	8.0
2020+	86.27	10.0	85.24	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 Adjusted Fuel Carbon Intensity Values

Fuel	Pathway	Carbon Intensity Values (gCO_2e/MJ)		
		Direct Emissions	Land Use or Other Effect	Total
Gasoline	CARBOB	95.86	0	95.86
Diesel	Ultra low sulfur	94.71	0	94.71
Corn ethanol (undenatured)	Midwest, average	68.60	30	98.60
	California, average	64.86	30	94.86
Sugarcane ethanol (undenatured)	Brazil, average	27.40	46	73.40
Cellulosic ethanol	Farmed trees	2.40	18	20.40
	Forest waste	22.20	0	22.20
Biodiesel	Soybeans	26.93	42	68.93

Source: California Air Resources Board, Lifecycle Analysis, version 2.1, available at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm#tool.

CA LCFS Compliance Timeline, E10 and B2

Year	LCFS reduction	Gasoline (CARBOB baseline)	Diesel (ULSD baseline)	Corn ethanol		Sugarcane ethanol	Cellulosic ethanol		Biodiesel
				Midwest	California	Brazil	Trees	Forest waste	Soy
	Percent	Carbon intensity (gCO2e/MJ)							
2011	0.25	95.61	94.47	96.13	95.76	93.61	88.31	88.49	94.19
2012	0.5	95.34	94.24	96.13	95.76	93.61	88.31	88.49	94.19
2013	1.0	94.89	93.76	96.13	95.76	93.61	88.31	88.49	94.19
2014	1.5	94.41	93.29	96.13	95.76	93.61	88.31	88.49	94.19
2015	2.5	93.45	92.34	96.13	95.76	93.61	88.31	88.49	94.19
2016	3.5	92.50	91.40	96.13	95.76	93.61	88.31	88.49	94.19
2017	5.0	91.06	89.97	96.13	95.76	93.61	88.31	88.49	94.19
2018	6.5	89.62	88.55	96.13	95.76	93.61	88.31	88.49	94.19
2019	8.0	88.18	87.13	96.13	95.76	93.61	88.31	88.49	94.19
2020	10.0	86.27	85.24	96.13	95.76	93.61	88.31	88.49	94.19

Source: Calculated based on CARB proposed LCFS compliance parameters.

CA LCFS Compliance Timeline, E15 and B5

Year	LCFS reduction	Gasoline (CARBOB baseline)	Diesel (ULSD baseline)	Corn ethanol		Sugarcane ethanol	Cellulosic ethanol		Biodiesel
				Midwest	California	Brazil	Trees	Forest waste	Soy
	Percent	Carbon intensity (gCO2e/MJ)							
2011	0.25	95.61	94.47	96.27	95.71	92.49	84.54	84.81	93.42
2012	0.5	95.34	94.24	96.27	95.71	92.49	84.54	84.81	93.42
2013	1.0	94.89	93.76	96.27	95.71	92.49	84.54	84.81	93.42
2014	1.5	94.41	93.29	96.27	95.71	92.49	84.54	84.81	93.42
2015	2.5	93.45	92.34	96.27	95.71	92.49	84.54	84.81	93.42
2016	3.5	92.50	91.40	96.27	95.71	92.49	84.54	84.81	93.42
2017	5.0	91.06	89.97	96.27	95.71	92.49	84.54	84.81	93.42
2018	6.5	89.62	88.55	96.27	95.71	92.49	84.54	84.81	93.42
2019	8.0	88.18	87.13	96.27	95.71	92.49	84.54	84.81	93.42
2020	10.0	86.27	85.24	96.27	95.71	92.49	84.54	84.81	93.42

Source: Calculated based on CARB proposed LCFS compliance parameters.

CA LCFS Compliance Timeline, E85 and B10

Year	LCFS reduction	Gasoline (CARBOB baseline)	Diesel (ULSD baseline)	Corn ethanol		Sugarcane ethanol	Cellulosic ethanol		Biodiesel
				Midwest	California	Brazil	Trees	Forest waste	Soy
	Percent	Carbon intensity (gCO2e/MJ)							
2011	0.25	95.61	94.47	98.19	95.01	76.77	31.72	33.25	92.13
2012	0.5	95.34	94.24	98.19	95.01	76.77	31.72	33.25	92.13
2013	1.0	94.89	93.76	98.19	95.01	76.77	31.72	33.25	92.13
2014	1.5	94.41	93.29	98.19	95.01	76.77	31.72	33.25	92.13
2015	2.5	93.45	92.34	98.19	95.01	76.77	31.72	33.25	92.13
2016	3.5	92.50	91.40	98.19	95.01	76.77	31.72	33.25	92.13
2017	5.0	91.06	89.97	98.19	95.01	76.77	31.72	33.25	92.13
2018	6.5	89.62	88.55	98.19	95.01	76.77	31.72	33.25	92.13
2019	8.0	88.18	87.13	98.19	95.01	76.77	31.72	33.25	92.13
2020	10.0	86.27	85.24	98.19	95.01	76.77	31.72	33.25	92.13

Source: Calculated based on CARB proposed LCFS compliance parameters.

Northeast and Mid Atlantic Low Carbon Fuel Framework

- CT, DE, ME, MD, MA, NH, NJ, NY, PA RI, VT
- Studying CA LCFS
- Will collaborate with Northeast States for Coordinated Air Use Management
- MOU by December 31, 2009 to develop LCFS
- http://www.mass.gov/Eoeea/docs/pr_lcfs_attach.pdf

Trade policy

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

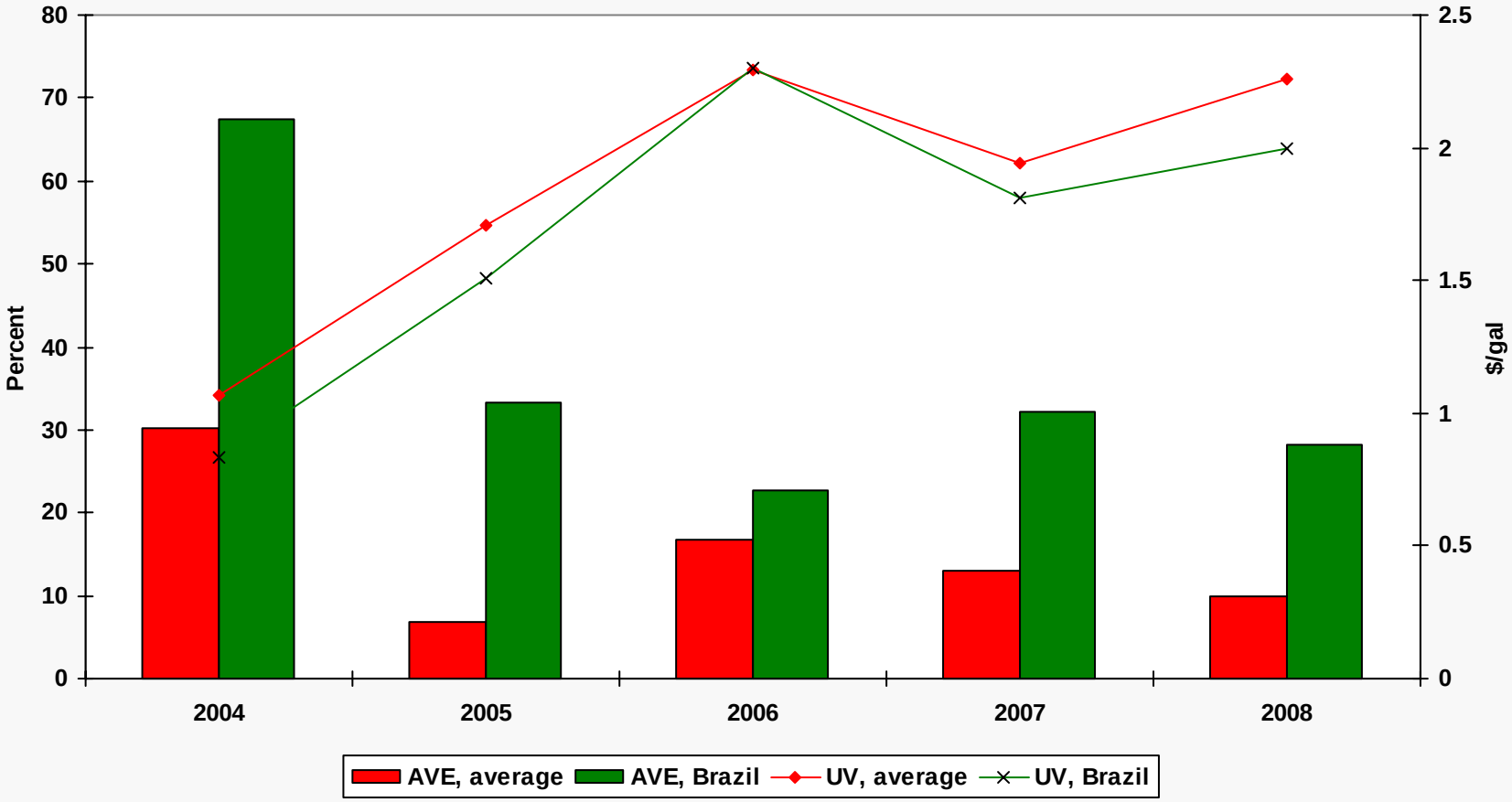
- Major policy elements
  - Duties
  - ODC
  - CBI dehydration quota
  - Biofuels MOU with Brazil

U.S. Ethanol Duties

HTS subheading	Duty		Preference programs
	Column 1	Preferential	
2207.10.6010 (undenatured)	2.5 % ad valorem	Free	GSP+ (least-developed), Australia, Bahrain, NAFTA, CBERA, ATPA, Israel, Jordan, Morocco, DR-CAFTA, Singapore, Chile, Peru U.S. insular possessions
2207.10.2010 (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) EXPIRES AT THE END OF 2010	14.27 cents per liter (54 cents/gal)	Free	GSP+ (least-developed), ATPA, NAFTA, Israel, CBERA, DR-CAFTA, Peru, U.S. insular possessions

Source: HTSUSA

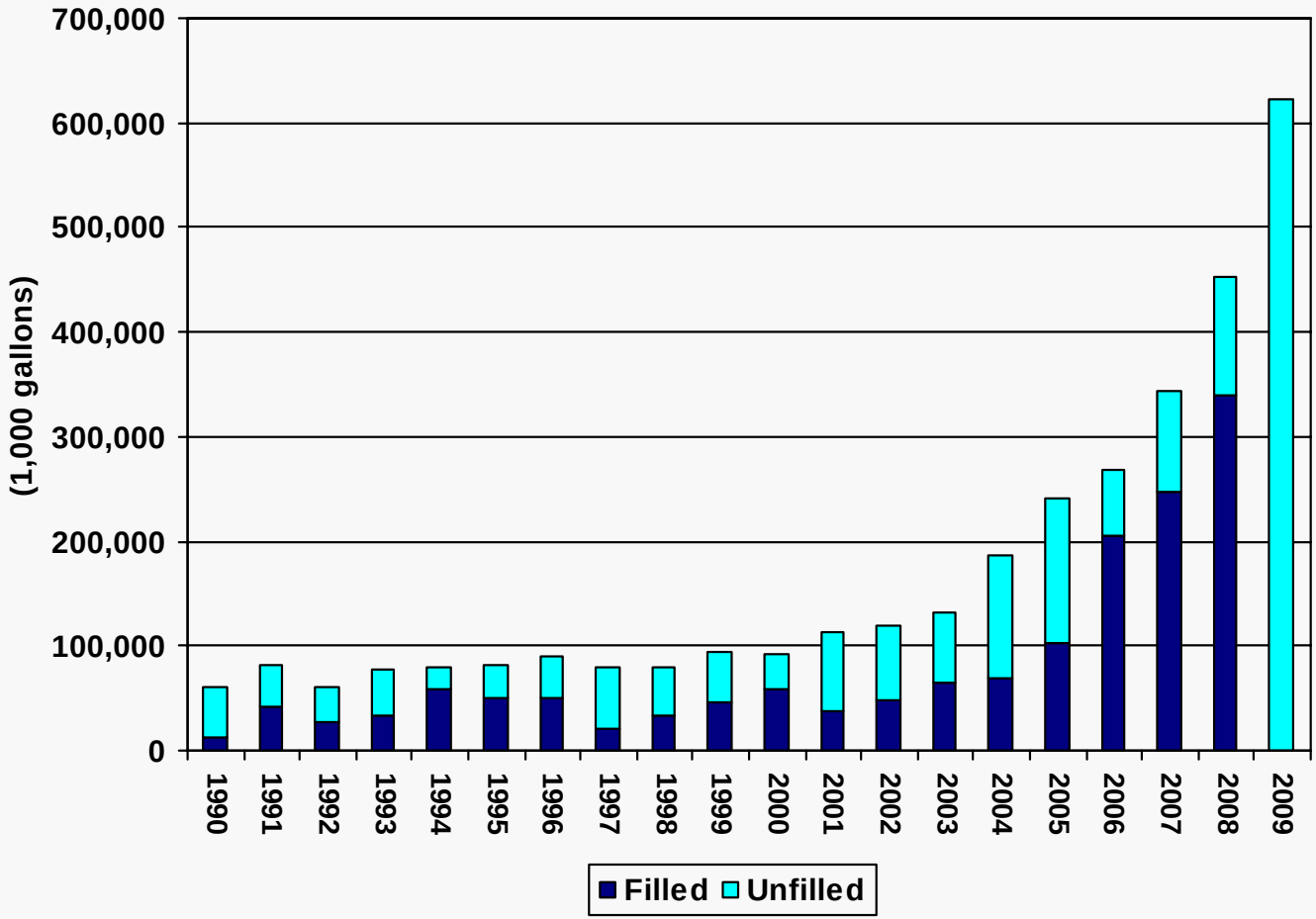
U.S. ad valorem equivalent duty rates and import unit values, 2004-Jan-Nov 2008



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

U.S. fuel ethanol imports under the CBI quota, 1990-2009



Source: USITC; CBP

Brazil-US Biofuels MOU

- Effective March 9, 2007
- Three-pronged approach
  - Bilateral: advance R&D of next generation biofuels
  - Third countries: feasibility studies and technical assistance to encourage local production and consumption
  - Global: establish uniform standards and codes
- Dominican Republic, El Salvador, Haiti, St. Kitts and Nevis, Guatemala, Honduras, Jamaica, Guinea-Bissau, Senegal
- Does not address tariffs

Trade Implications

Global Trade Implications

- Varying pace of development and adoption of sustainability standards
- Varying elements of sustainability standards
- Enforcement
- Trade diversion
- Effect on investment decisions
- Countervailing duty actions
- WTO Disputes?

WTO Issues

- Technical Barriers to Trade Agreement (TBTA)

- GATT
  - Article I—Most favored nation treatment
  - Article III—National treatment
  - Article XI—Quantitative restrictions
  - Article XX—Exceptions
    - Protect human, animal, plant life or health
    - Conservation of exhaustible natural resources

- Compliance costs for developing countries; need for capacity building

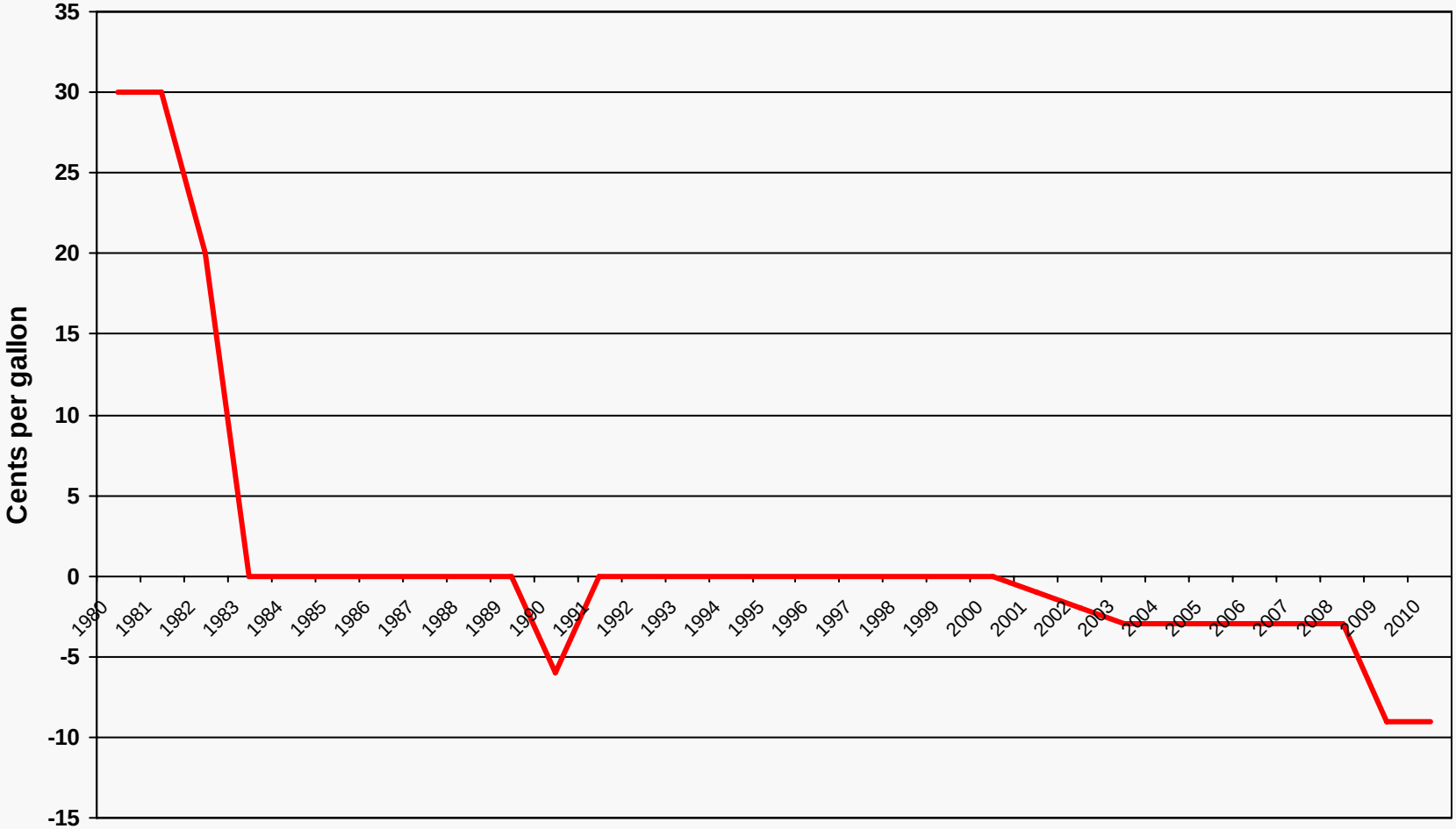
- Social and labor issues

Source: WTO, UNCTAD, ICTSD, btg

U.S. Trade Issues

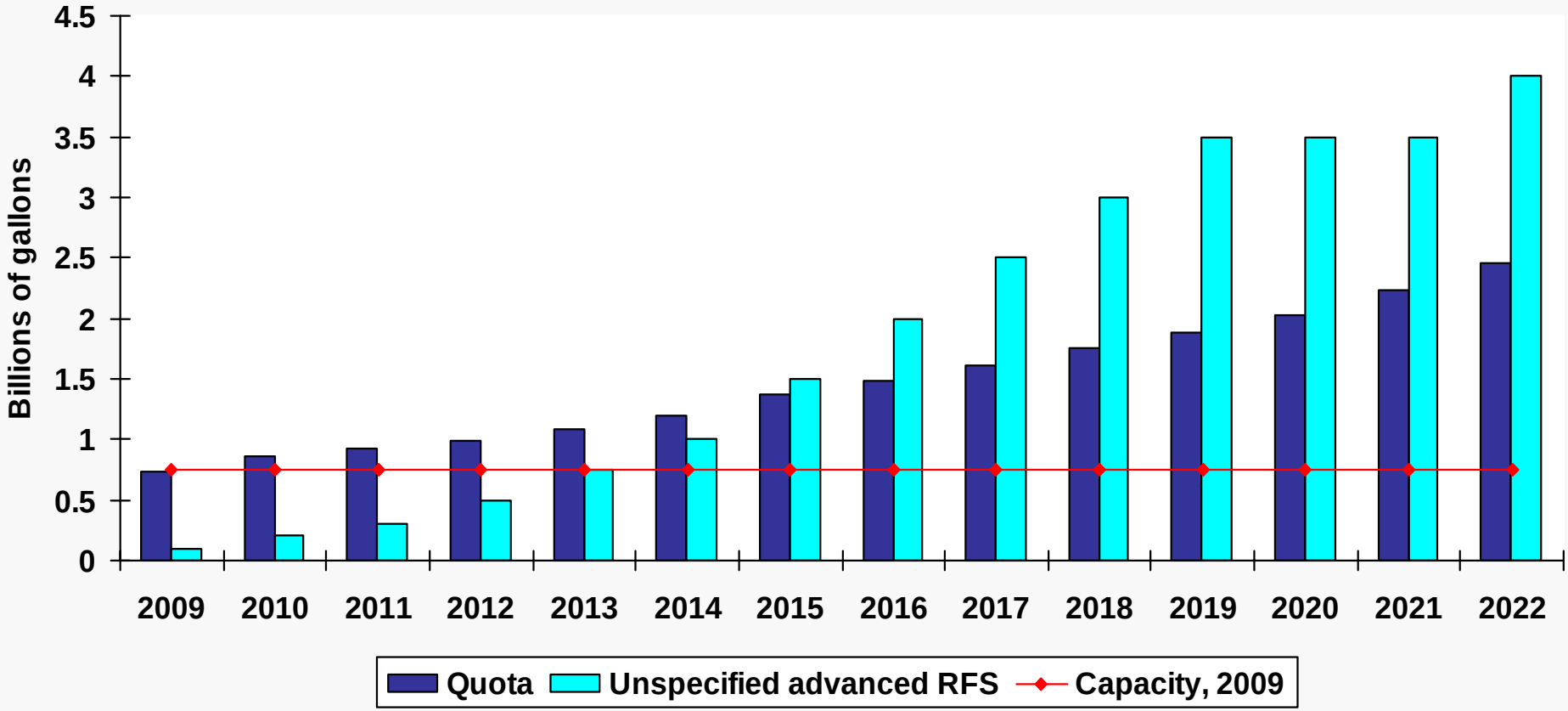
- RFS2, CA LCFS pose compliance and enforcement problems
- Grandfathering of domestic corn mills
- No GHG provision in regulations for imports from sources other than Brazilian sugarcane ethanol
- How will CBI dehydration quota imports be handled?
- Different Federal and State GHG standards
- California State Bioenergy Action Plan may be contrary to WTO national treatment
- Blend wall constraint to imports as well as to domestic supplies
- Gap between VEETC and ODC—9 cents/gallon
- ODC could inhibit future U.S. market access for Brazilian bagasse cellulosic ethanol despite domestic production shortfall
- U.S. exports
  - Corn ethanol--EU RED
  - Biodiesel--EU AD/CVD case

Difference Between VEETC and ODC, 1980-2010



Source: EIA, CRS, TSUSA, HTS

Projected CBI Ethanol Dehydration Quota, 2009-2022



Summary of Policy Implications

- U.S. ethanol policy is complex and diffuse
- Key U.S. policy elements are temporary and subject to frequent challenge, change, or elimination
- Policy flexibility and uncertainty affect the perception of risk
- New sustainability requirements increase short–term uncertainty
- Sustainability requirements affect market access and trade

What now?

- EPA RFS2 regulations
- Finalize California LCFS
- Northeast and Mid-Atlantic LCFS under development
- RFS2 and LCFS discrepancies
- Raise blend wall, expand E85
- Market access pressure (ODC, ILUC)
- Commercialize cellulosic
- Commoditize biofuels
- Biofuels under a cap and trade system?

Thank you!