

Chicago Climate Exchange, Inc.



Richard L. Sandor, Ph.D., Dr. Sc.h.c.
Chairman and Founder, Chicago Climate Exchange (CCX)
Vice Chairman, Tianjin Climate Exchange (TCX)

January, 2010



Wealth creation in the U.S. since WW II²

- 1945-70: Manufacturing
- 1970's: Inflation
- 1980's: Commoditization of interest rates, asset liability mgmt., commoditization of mortgages and bank debt
- 1990's: Commoditization of information: High tech, telecom
- 21st Century: Commoditization of Air and Water

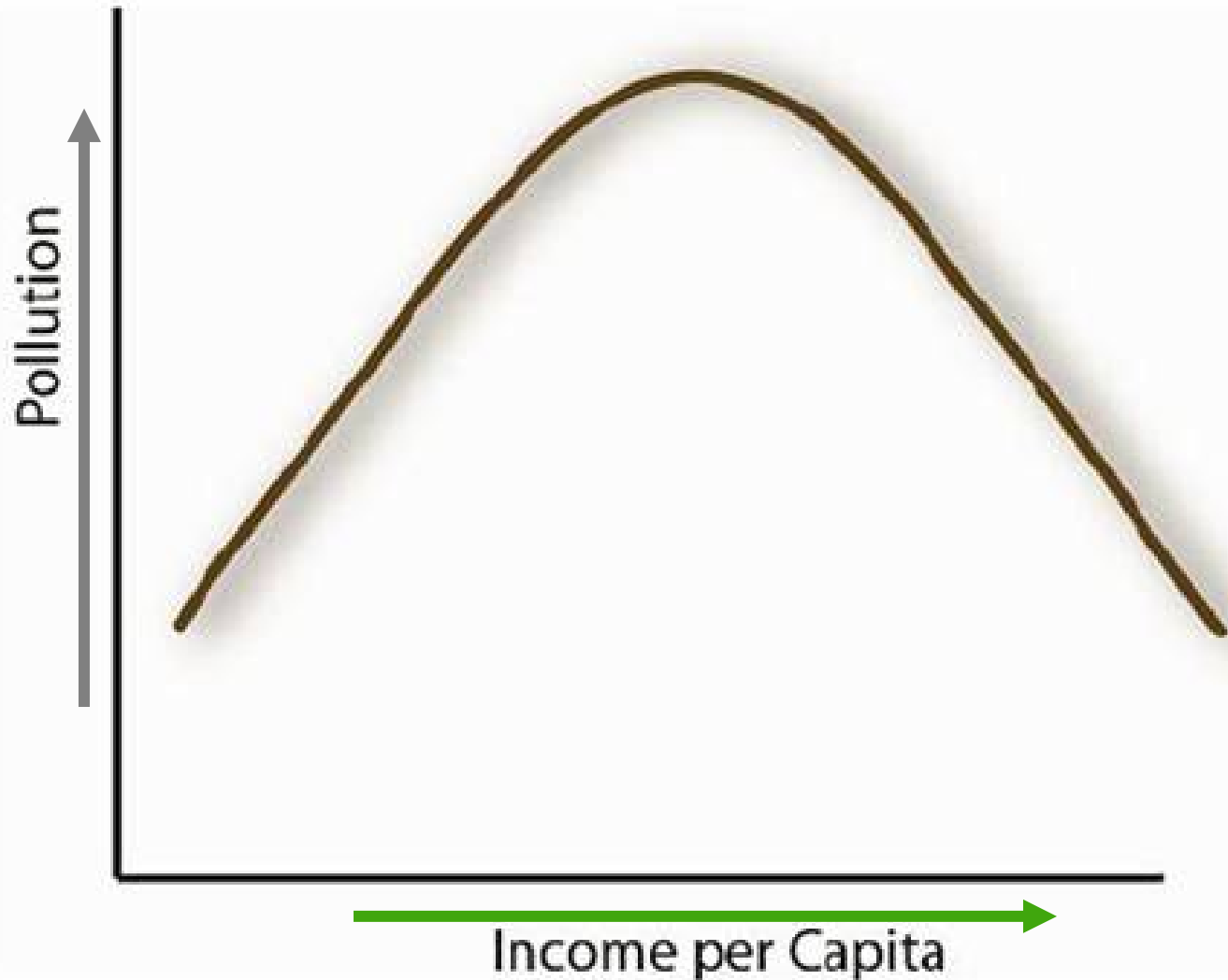


Scarcity of Air and Water

- Air and water will be the largest markets of the 21st century
- TCX will help identify hidden assets and be at the forefront of understanding these huge new markets



Kuznets Curve



11th Five Year Plan Reduction Requirements

SO₂: Reduce 10% below 2005 levels by 2010

COD: Reduce 10% below 2005 levels by 2010

Energy Intensity: Reduce 20% by 2010

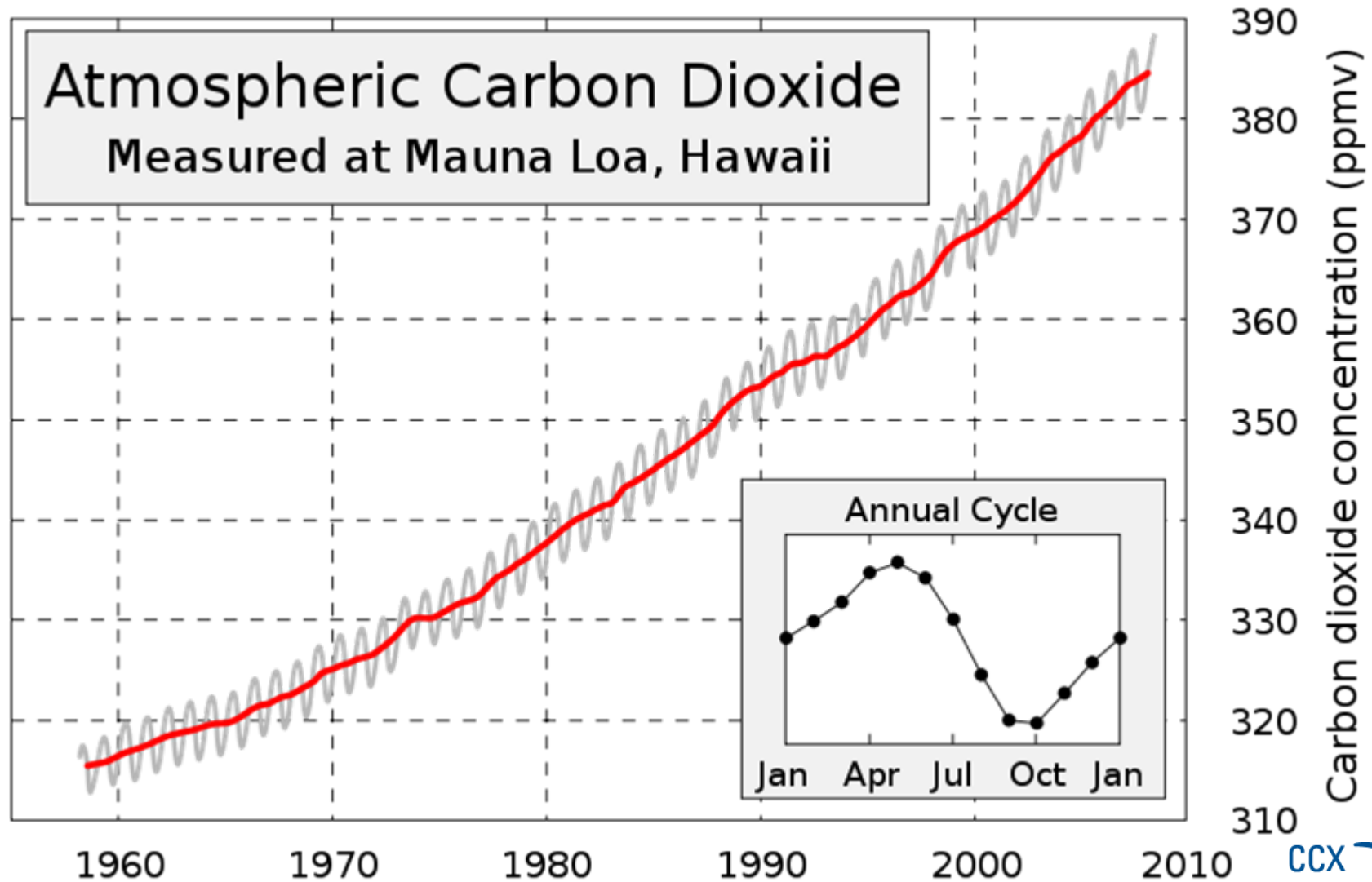
Energy Intensity and CO₂ Emissions Linked

Carbon Intensity: Reduce 40 -45% by 2020

12th Five Year Plan



Keeling Curve – CO₂ Concentration



Ways to Achieve Five Year Plan Goals

- Government Regulation (“Command and Control”)
- Market-based (“Cap-and-Trade”)



What is Cap-and-Trade?

- A flexible market tool
- Emitters who reduce emissions beyond their targets may **sell** the “extra” to others
- Emitters who do not meet their target must **buy** “extra” from others

Cap-and-Trade

Cap = Environmental Benefit (Cap on Emissions)

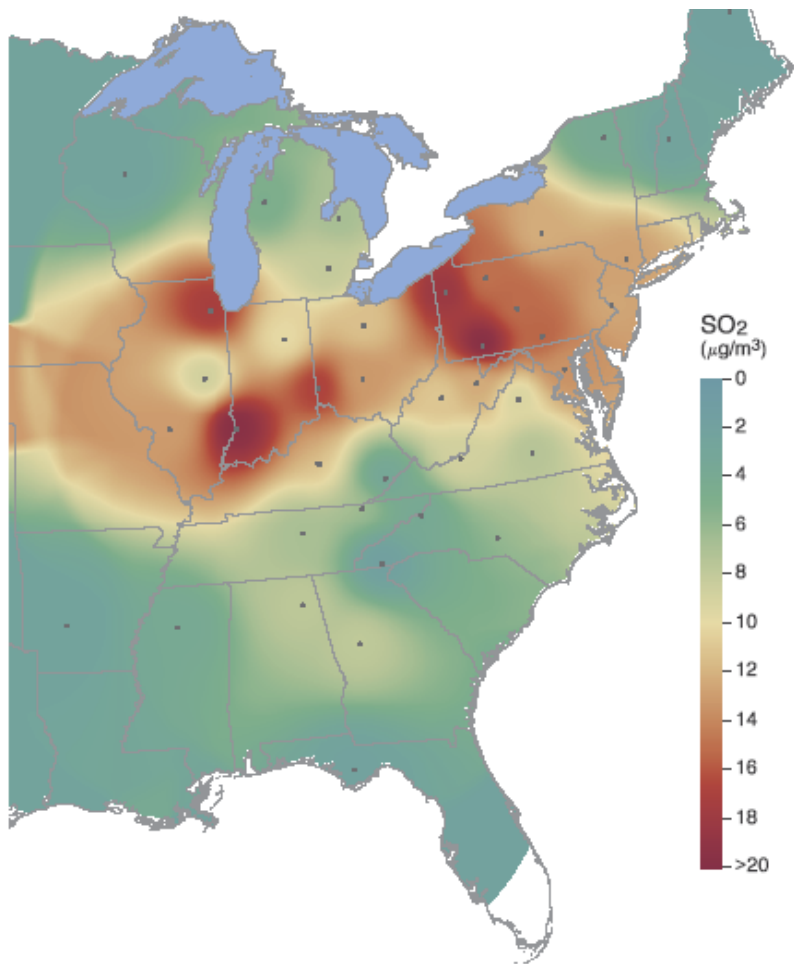
Trade = Economic Benefit (Flexibility from Buy/Sell)

Cap-and-Trade = Environmental benefit at least cost

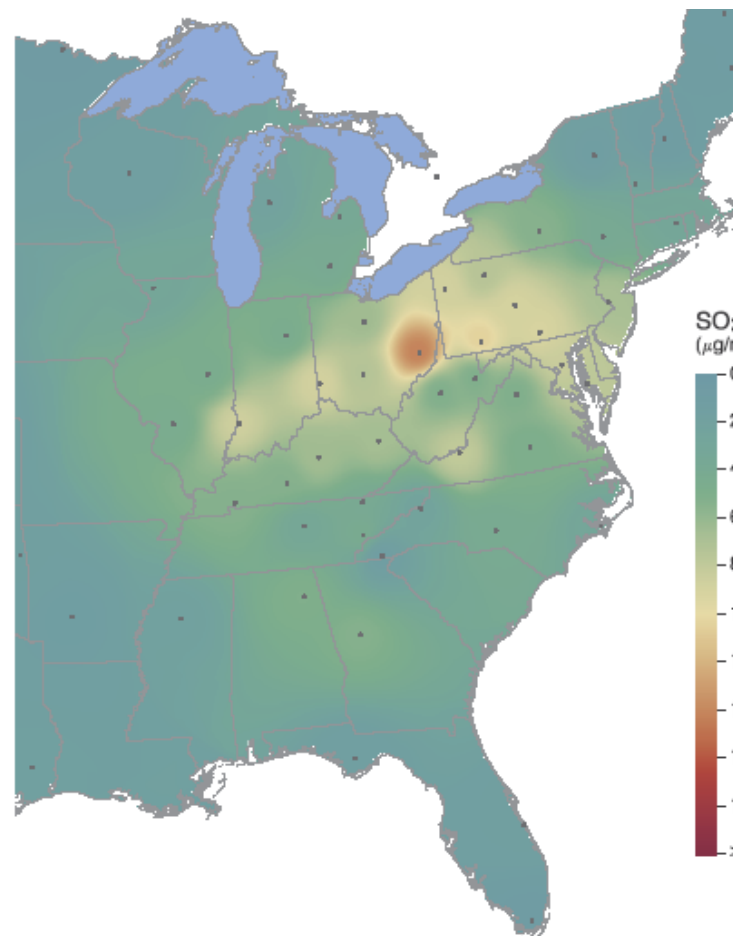
Cap-and-Trade with U.S. SO₂ Pollution

Annual Mean Ambient SO₂ Concentration

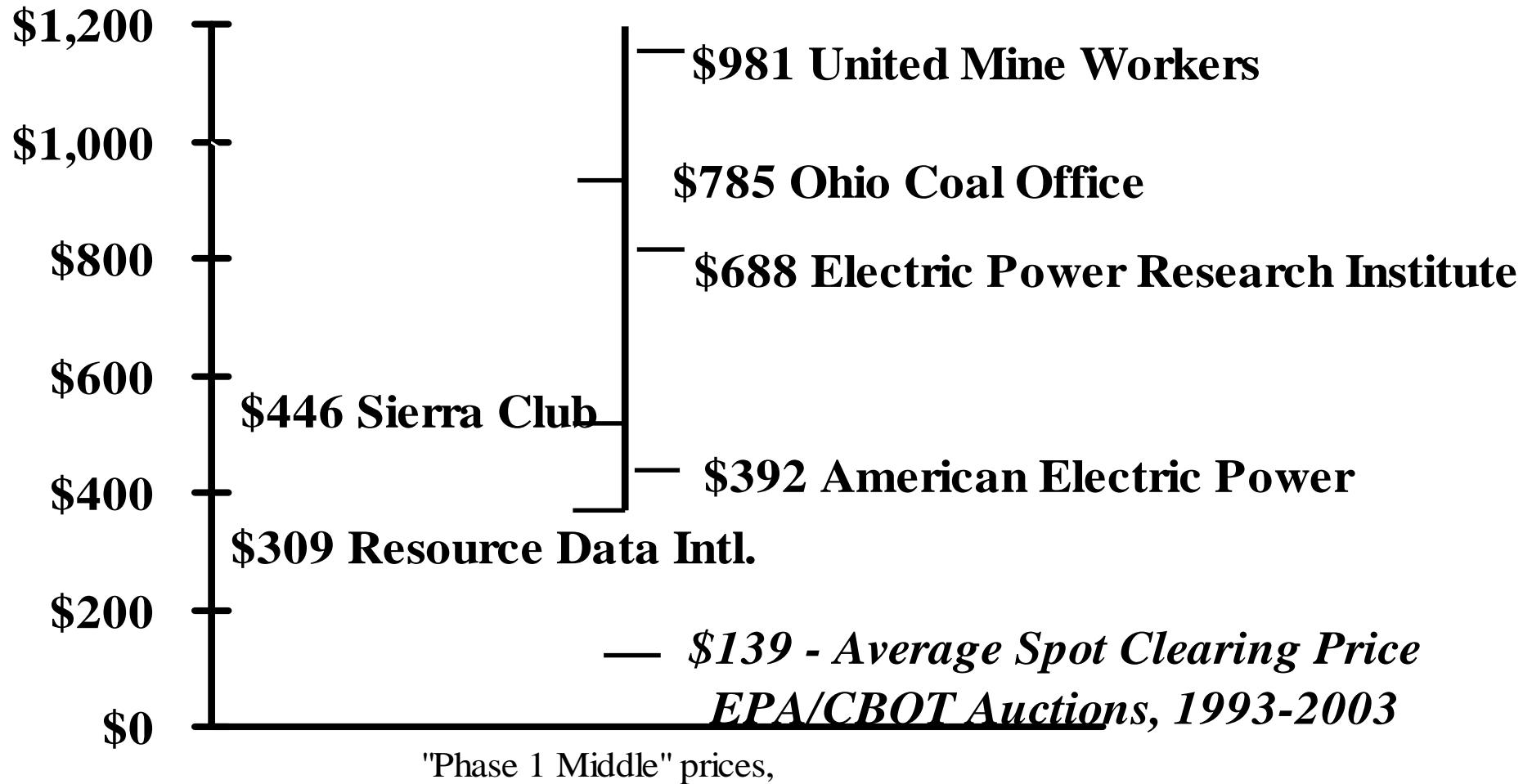
1989-1991



2004-2007



Predictions of High Cost of Compliance



Source: Hahn and May, The Electricity Journal, March 1994



Benefits of U.S. SO₂ Emissions Reductions

- Costs to the U.S. economy of the Acid Rain Program:
\$ 1- 2 billion
- Real electricity rates are lower today than in 1990
- Current benefits associated with reduced medical expenses associated with lung disease ~ \$40 - 70 billion
- Future benefits (estimated by EPA) expected to grow to \$123 billion annually in 2010 with the same annual costs.



Extrapolating Benefits of SO₂ Cap-and-Trade in China

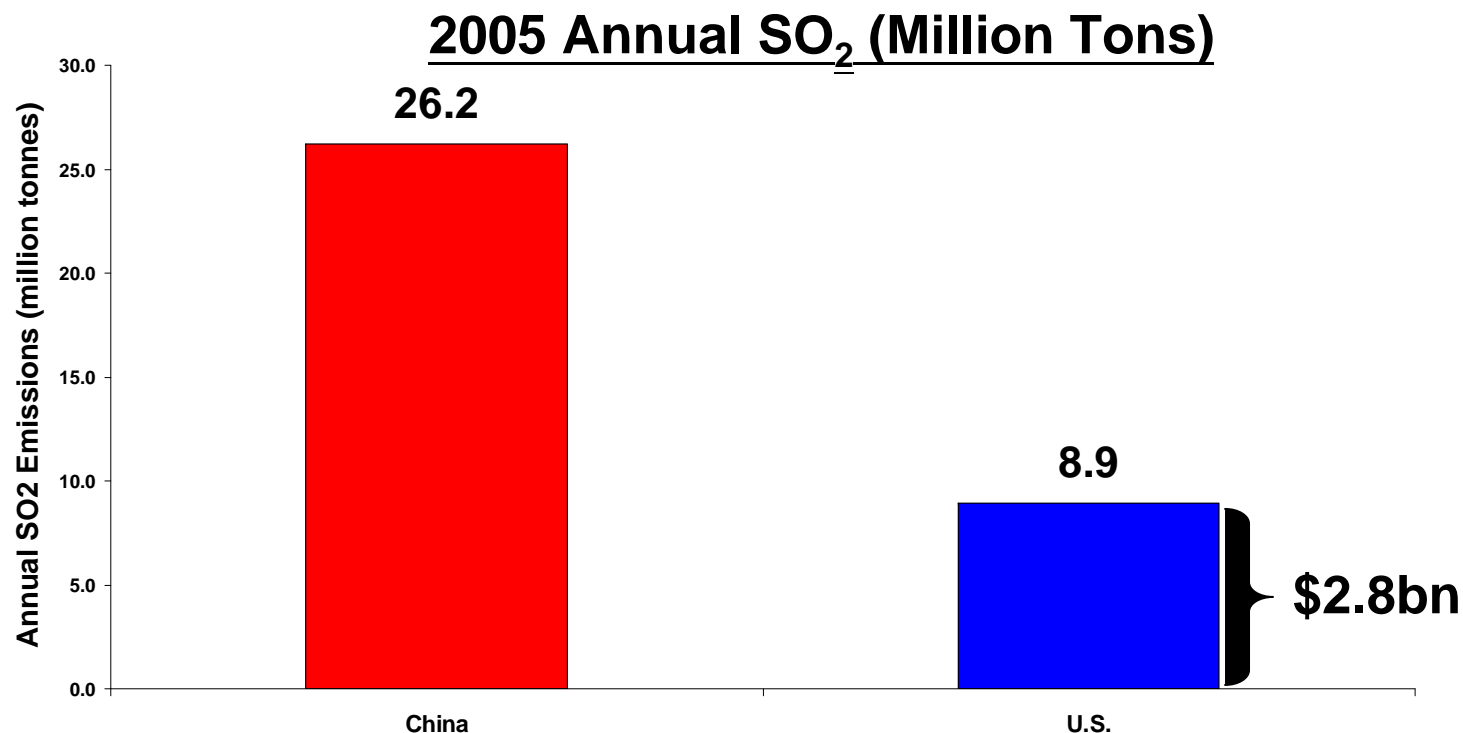
- US: Reduction of 9 million tons of SO₂ worth approximately \$125 billion annually in reduced medical costs
- China: Current SO₂ emissions approximately 26 million tons (MEP)
- China has same landmass as US, but with four times the population
- 9 million ton SO₂ reduction could be 4X more valuable in China, approximately \$600 billion annually in reduced medical costs
- 18 million tons SO₂ reduction could avoid more than \$1 trillion dollars in contingent liability that would hinder economic growth

18 million ton SO₂ reduction in China would make SO₂ emissions of China and US approximately equal



Potential SO₂ Market in China

- China has largest SO₂ Emissions in the World, 3X larger than U.S.
- U.S. Allowance Market Value (2007) of U.S. SO₂ emissions: **\$2.8bn**
- Annual value of SO₂ futures trading could range from **\$28-\$84 billion**



Source: U.S. EPA (2007) and China MEP (2006)



What is Climate Exchange Plc? ¹⁴

(CCX, CCFE, ECX, TCX, MCeX, enVex)

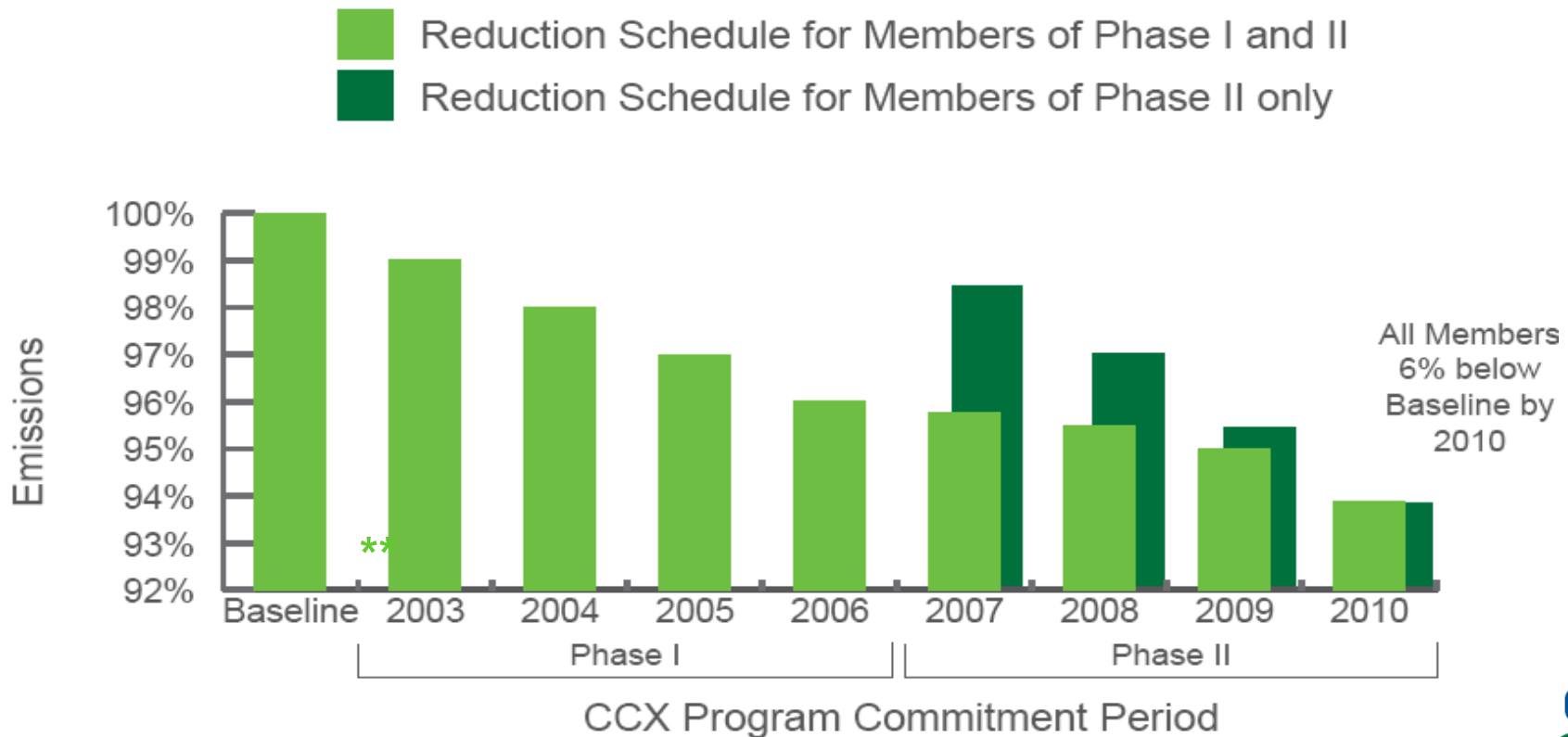


What is CCX?

Phase I (2003-2006): Members made legally binding commitments to reduce/trade to 4% below baseline by 2006

Phase II (2007-2010): Members make legally binding commitment to reduce/trade to 6% below baseline by 2010

** **Baseline**: Average emissions from years 1998-2001 (Phase I), emissions from year 2000 (Phase II)



CCX[®] Membership Highlights

- **Represents 17% of the Dow Jones Industrials, including:**
 - Bank of America
 - DuPont
 - Intel
 - IBM
 - United Technologies

- **Represents 11% of the Fortune 100, including:**
 - Ford
 - Motorola
 - Safeway
 - International Paper
 - Honeywell International Inc.

- **Represents 20% of the largest CO₂ emitting utilities in the US, including:**

– AEP	Mirant
– Reliant	Dynegy
– Allegheny Energy	TECO
– DTE	Alliant
– NRG Energy	American Electric Cooperative, Inc



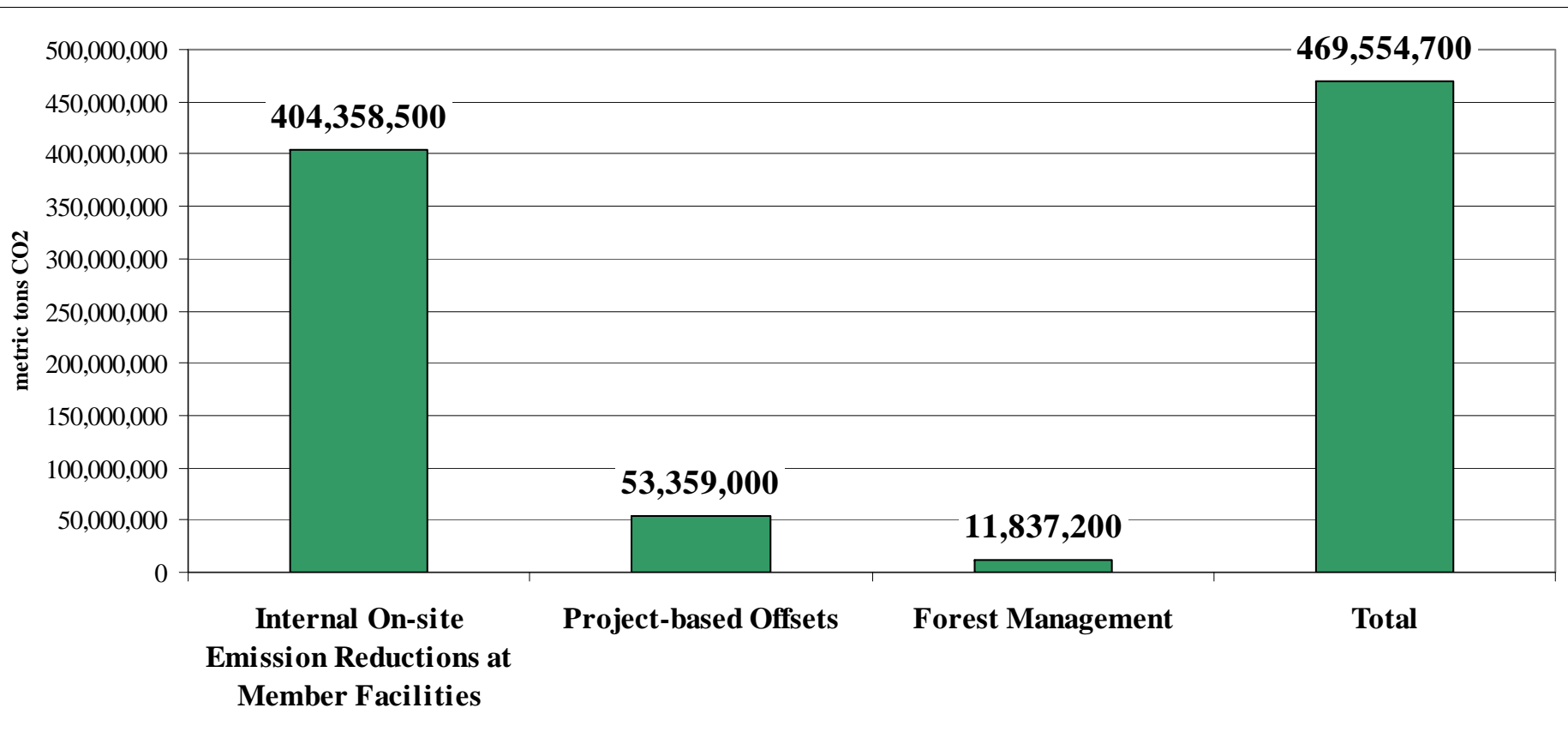
CCX Membership Today

Economy Wide - More than 450 members



Environmental Results of CCX

Entity-wide emission reductions in excess of Program requirements, with no hampering of Membership's economic growth



Measures that Companies Can Take

CCX Member Case Studies

American Electric Power: Switched from coal to natural gas generation, increased energy efficiency, increased use of renewable energy

Dupont: Modified production processes to improve metering and produce less HFCs; installed HFC recovery systems with thermal destruction capability; Reduced GHG emissions by 72% and avoided costs of \$3 billion in efficiency upgrades

DTE Energy: Installed turbine upgrades at largest coal plants, worked with industrial customers to improve efficiency at their facilities

Baxter Healthcare: Installed new air compressor technology to decrease energy consumption by 50%

ST Microelectronics: Formed research partnerships with Universities and developed semi-conductor PFC abatement techniques using absorption cartridge, plasma and thermal methods

TECO Energy: Repowered 1800 MW power station from coal to natural gas

International Paper: Invested \$200 million to improve efficiency and implement fuel switching, worked on development of forestry protocols

IBM: Established best practices teams for energy management at data centers

Safeway: Installed 14 solar projects, removing more than 500,000 tons CO₂ from the air; implemented route optimization software to determine most efficient delivery routes

Freescale: Developed proprietary alternative semi-conductor cleaning methods that replaces hexafluorethane (C₂F₆, GWP = 11,900) with non GHGs in the chamber cleaning process



CCX Activities in China

May 2006: First Chinese Companies join CCX to sell through CCX market

August 2006: CSRC requests consultancy with CCX CEO for China Bond Futures Market

July 2007: Guanghua School of Management invites Dr. Sandor invited to join international advisory council

Fall 2007: MOST-UNDP invites CCX to consult on development of carbon market to meet Millennium Development Goals

January 2008: CCX and CNPCAM sign MOU for JV in China

July 2008: CCX, CNPCAM, City of Tianjin form Tianjin Climate Exchange

September 2008: TCX Opening Ceremony at TCX HQ



What is TCX?

Tianjin Climate Exchange (TCX) will implement the Binhai Comprehensive Reform Plan, approved on March 13, 2008 by the State Council of the People's Republic of China (PRC) to establish an emissions trading market in Tianjin Binhai New Area.



TCX is a joint venture of:

- China National Petroleum Corporation Assets Management (CNPCAM)
- City of Tianjin
- Chicago Climate Exchange (CCX)

Mission: To address national and international emissions and energy management challenges, improve environmental quality and seek the balance between environmental and economic benefits.



TCX Initial Products

Can Facilitate 11th Five Year Plan Goals

TCX Product: SO₂

- National Goal: Reduce 10% below 2005 levels by 2010

TCX Product: COD

- National Goal: Reduce 10% below 2005 levels by 2010

TCX Product: Greenhouse Gas Emissions

- Voluntary or Mandatory, linked to Energy Efficiency/Carbon Intensity
- National Goal: Reduce energy intensity by 20% by 2010

TCX Product: CERs

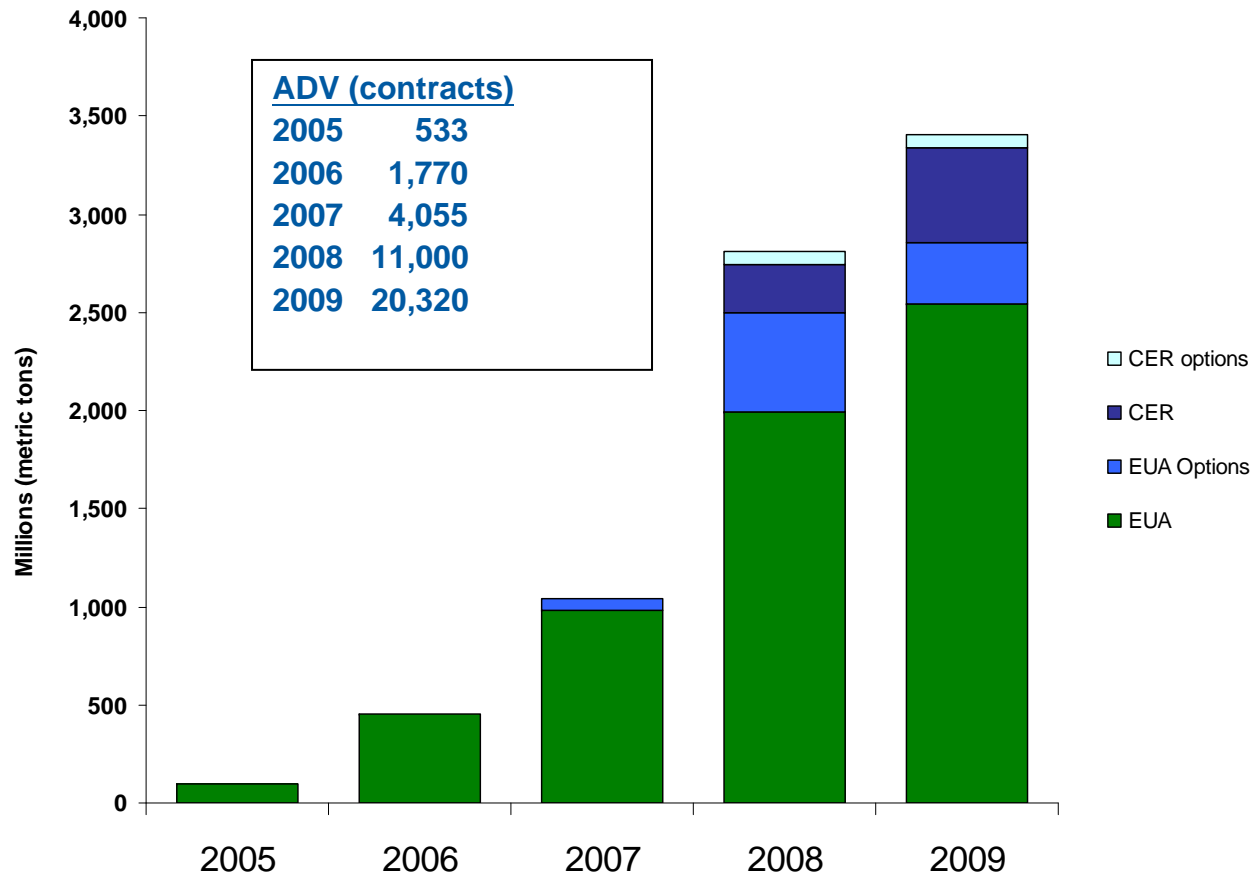
- National emphasis on CDM CERs



Tianjin Climate Exchange – Opening Ceremony



ECX Historic Volumes (metric tons)

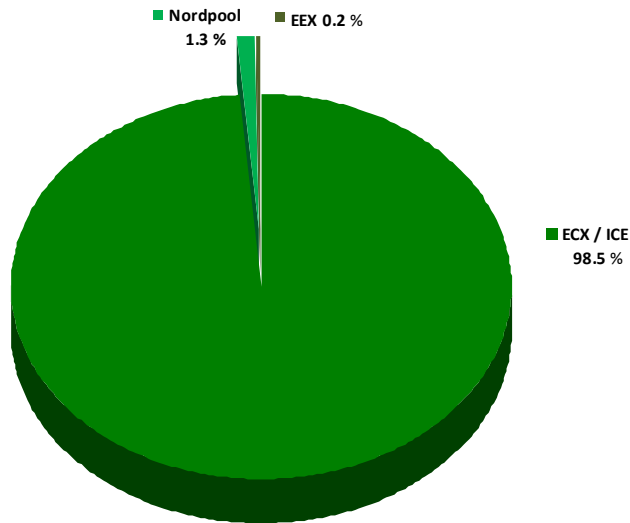


a

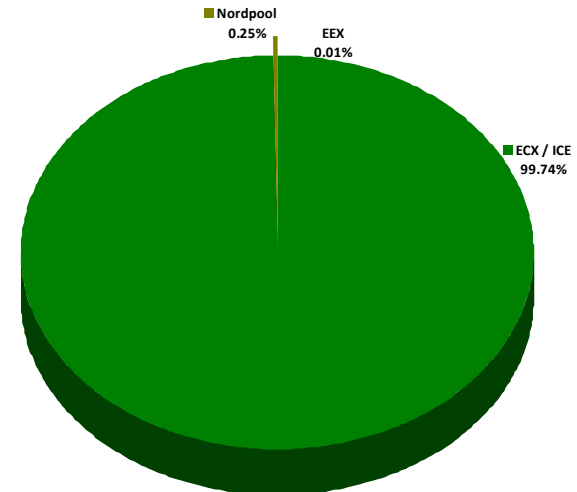


EU-ETS Exchange Volumes (EUAs & CERs)

EUA Futures & Options: Exchange Volumes
August 2009



CER Futures & Options: Exchange Volumes
August 2009



Chicago Climate Futures Exchange (CCFE)

US Emissions - EPA

- Sulfur Financial Instrument® (SFI®) Futures and Options
- Nitrogen Financial Instrument™ - Ozone Season (NFI™ -OS) Futures
- Nitrogen Financial Instrument™ - CAIR Annual (NFI™ -A) Futures and Options

US Carbon Emissions

- Regional Greenhouse Gas Initiative (RGGI) Futures and Options
- Carbon Financial Instrument® (CFI®) Futures and Options
- U.S. Carbon Financial Instrument (CFI-US®) Jan '13–Dec '15 Futures & Options
- California Climate Action Reserve Tons (CCAR-CRT®) Futures and Options

Equity-Index Products

- ECO-Clean Energy Index (ECO) Futures
- Dow Jones Sustainability World Index (DJSI-W) Futures *

IFEX™ Insurance

- U.S. Tropical Wind (\$10, \$20, \$30, \$40 and \$50 Billion)
- Florida Tropical Wind (\$10, \$20, \$30, \$40 and \$50 Billion)
- Gulf Coast Tropical Wind (\$10, \$20, \$30, \$40 and \$50 Billion)

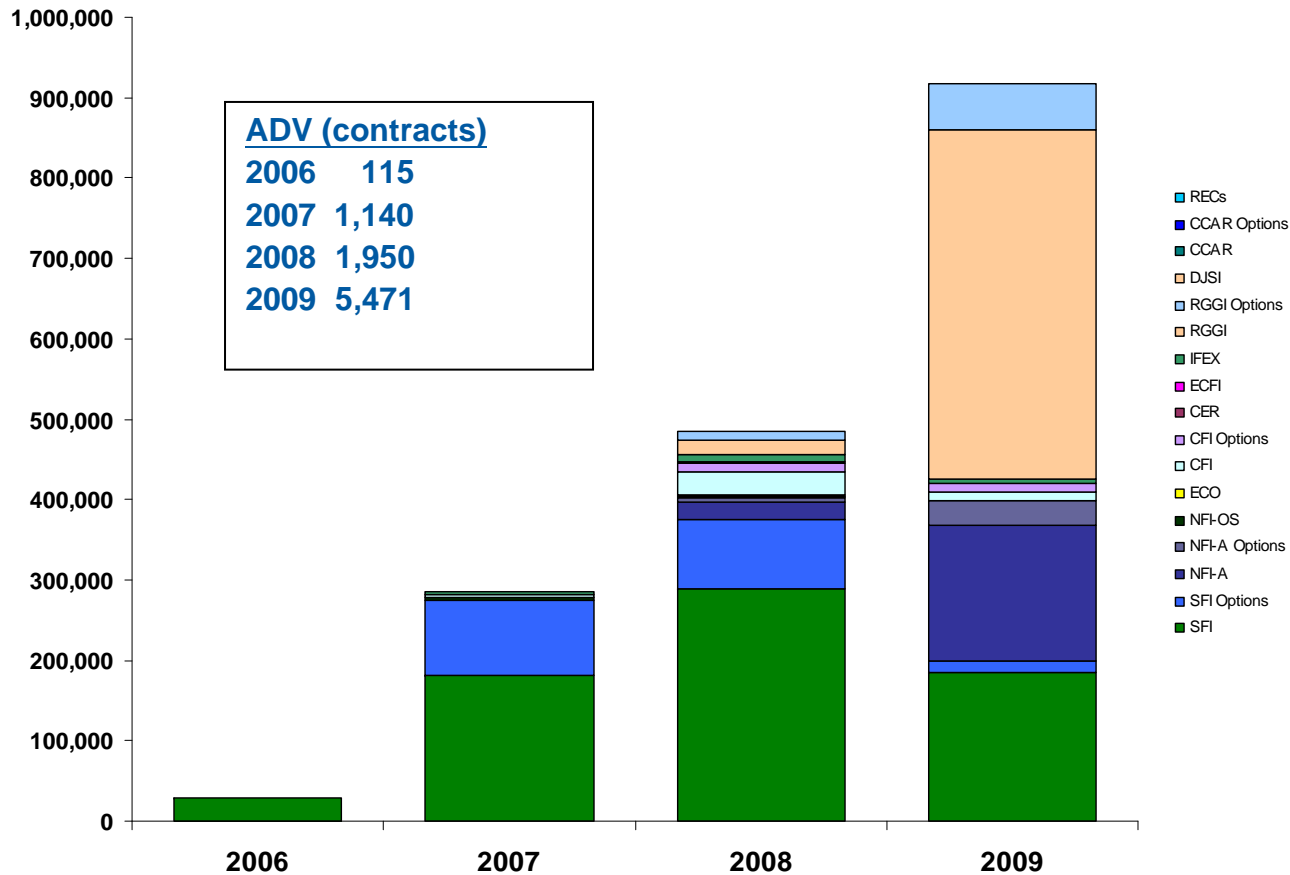
Renewable Energy Products

- New Jersey Renewable Energy Certificate (REC-NJ) Futures
- Connecticut Renewable Energy Certificate (REC-CT) Futures
- Massachusetts Renewable Energy Certificate (REC-MA) Futures
- Voluntary Renewable Energy Certificate (REC-V) Futures

*Dow Jones, World Sustainability IndexSM are service marks of Dow Jones & Company, Inc. Dow Jones has no relationship to the Chicago Climate Futures Exchange, other than the licensing of the Dow Jones World Sustainability Index and its service marks for use in connection with the Dow Jones World Sustainability Index Futures products.

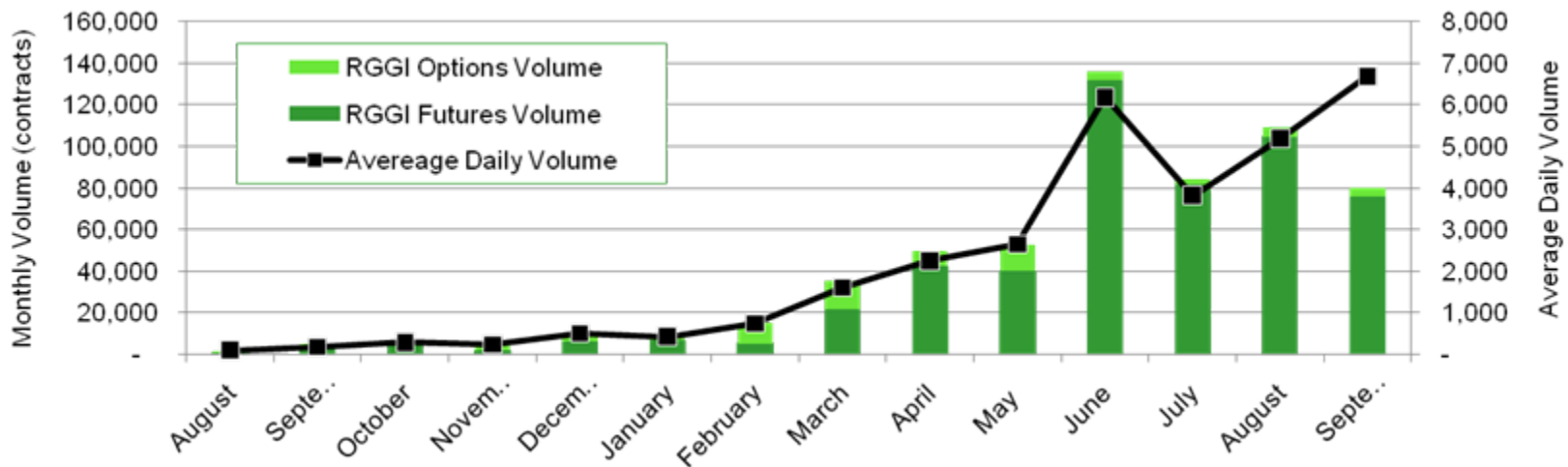


CCFE[®] Historic Volumes (contracts)



RGGI: 1st Mandatory Carbon Market in U.S. Exhibits Dramatic Growth

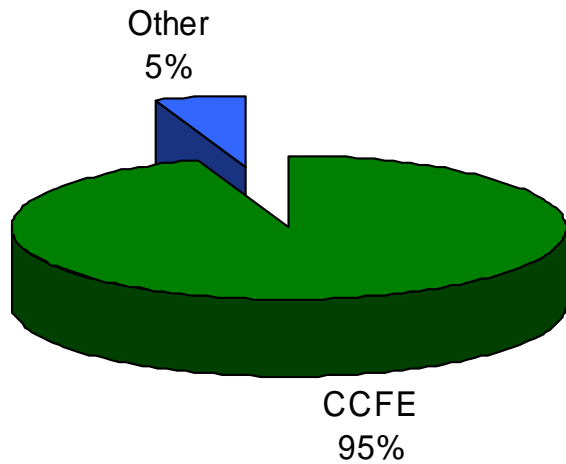
- **1st RGGI Auction: 12,565,387 Allowances**
- **2nd RGGI Auction: 31,505,898 Allowances**
- **3rd RGGI Auction: 33,689,278 Allowances**
- **4th RGGI Auction: 33,060,160 Allowances**
- **5th RGGI Auction: 30,581,485 Allowances**
- **Total Auctioned: 141,402,208 Allowances**
- **RGGI Derivatives Traded on CCFE: 598,629,000 Allowances**



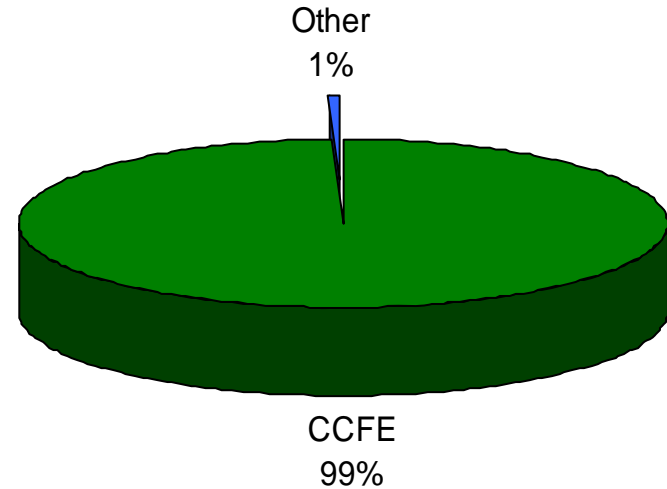
*As of 9/17/2009

CCFE[®] Exchange Volume Comparisons

SO₂ and NO_x Futures and Options



RGGI Futures and Options

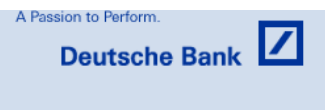


The Role of Price Discovery

- To stimulate inventive activity
- To reorganize corporate financial decision-making
- To monetize hidden assets



CCFE[®] Clearing Members



CLE.L Pro-Forma Financial Highlights

	H1 2009 (June 30 th) £'000	H1 2008 (June 30 th) £'000
Core business revenue	18,809	10,790
Core business operating expenses	(12,080)	(7,367)
Core business operating profit	6,729	3,423
Group Profit before tax	4,703	1,626
Cash and cash equivalents including short term investments	16,548	12,404 (Dec. 31, 2008)