



The Carbon Edge

August 12, 2009

Wealth creation in the U.S. since WW II

- 1950's Manufacturing
- 1970's Commodities
- 1980's Interest Rate Derivatives
- 1990's Information
- 2000's Air and Water



What is Emissions Trading?

- Emissions Trading:

Goal is to provide economic incentives for the purpose of controlling pollution and reducing emissions of pollutants.

- Cap and Trade:

Environmental policy tool designed for emissions trading systems under which total emissions are limited or 'capped'.



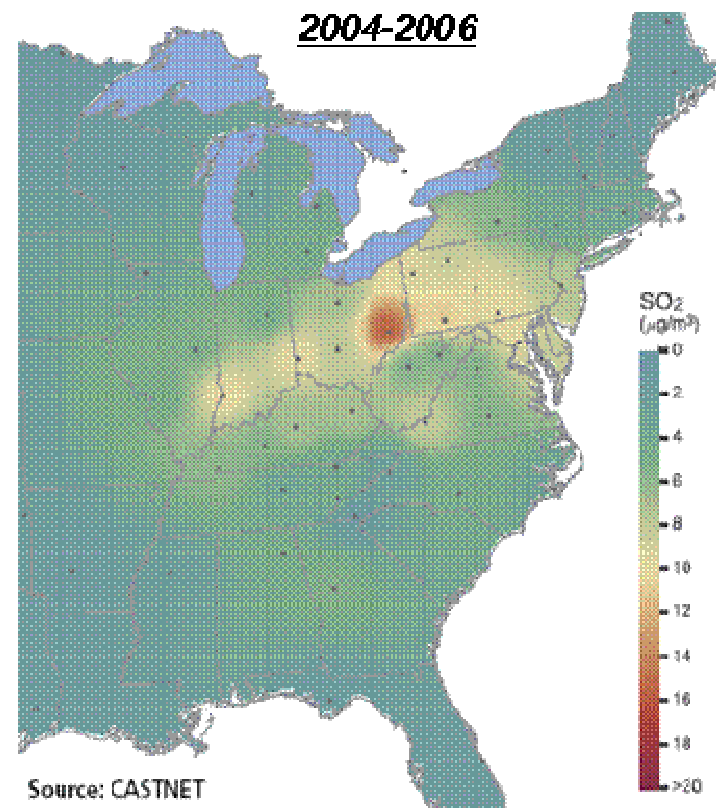
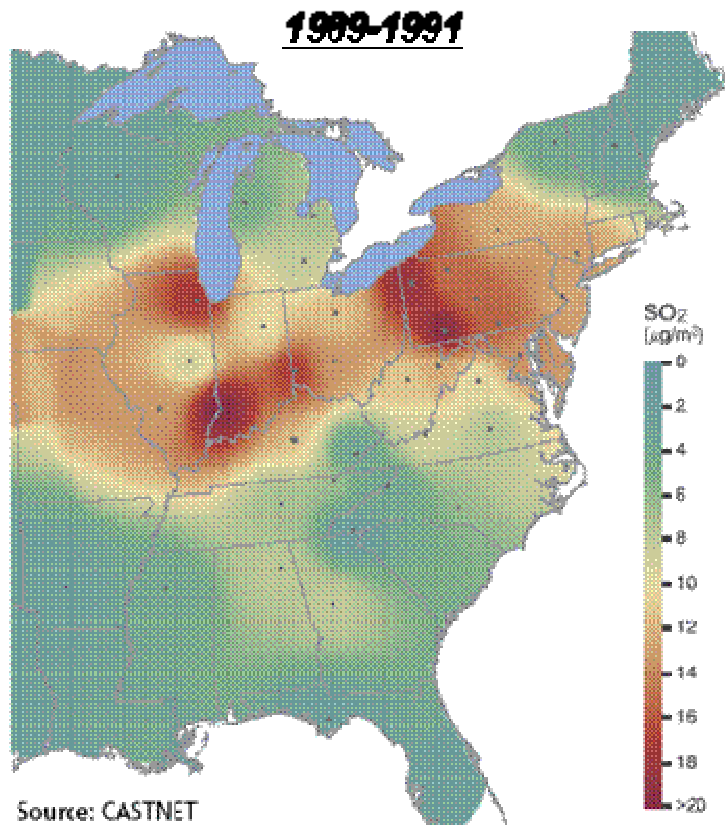
Why emissions trading?

- Proven, least-cost, and comprehensive tool for managing emissions
- Successful precedents: U.S. Acid Rain Program
- Provides a price signal
- Rewards technological innovation and strategic planning
- Flexible, efficient
- Reveals hidden assets and hidden costs throughout operations



Impact of Trading on SO₂ Pollution

Annual Mean Ambient SO₂ Concentration



- The US Acid Rain Program's annual benefits in the year 2010 are expected to be \$122 billion (Yr. 2000 \$)
- Based on EPA's latest air quality trends data the national composite average of SO₂ annual mean ambient concentrations decreased 48 percent between 1990 and 2005.

Achieving Emission Reduction

- Lower carbon fuel: natural gas, CO₂ neutral fuel
- More efficient fuel use: MPG, lighting, insulation
- Methane/Other GHG capture/combustion
- Abatement devices, alternative chemicals
- Carbon sequestration:
 - reforestation, carbon accumulation, preservation
 - agricultural soils, geologic

How to orchestrate these to maximize benefits per dollar?



What is Chicago Climate Exchange?

Chicago Climate Exchange (CCX ®) is the world's first and North America's only active voluntary, legally binding integrated trading system to reduce emissions of all six greenhouse gases, with offset projects in North America and worldwide



CCX is a Complete System

- **QUANTIFY**
Establish annual entity-wide GHG emissions using standardized protocols
- **VERIFY & REGISTER**
CCX Registry account established, FINRA verification
- **REDUCE**
Adopt CCX annual emission reduction schedule, develop internal emissions management policies
- **TRADE**
Buy and sell CCX Carbon Financial Instruments™ contracts on web-based platform, trades cleared by CCX and entered into Registry



Quantify

- Prescribed Reporting Format:

 - Use WRI/WBCSD* GHG Calculation Tools for:
 - Stationary fuel combustion
 - Mobile fuel combustion
 - Industry-specific processes
- *World Resource Institute/World Business Council for Sustainable Development
- Power Generation Sector – Continuous Emission Monitors

 - Opt-ins:
 - Purchased Electricity
 - Small Emission Sources
 - Facilities Under Minor Ownership



Verify & Register

- Baseline and Annual emission reports submitted for verification to FINRA (Financial Regulatory Authority)
- FINRA uses sampling tool to generate documentation requirements
 - ✓ Source documents must be presented-e.g. energy purchase receipts, meter readings, conversion formulae, coefficients
- Corporate officer must sign emissions attestation
- FINRA reports reviewed by Environmental Compliance Committee



CCX Registry

CCX Registry Reports: Holdings Report - Microsoft Internet Explorer provided by Chicago Climate Exchange

You are logged in as mstern_ccx
Logout

Select Organization: CCX Test Company 1

CHICAGO CLIMATE EXCHANGE
Registry Holdings Report Page v1.1.2

CCX Test Company 1

- Organization Summary
- Holdings Summary
- Transaction History
- Emission Summary
- Daily Clearing Statement
- Monthly Clearing Statement

Admin

Chicago Climate Exchange Holdings Statement
Organization: CCX Test Company 1
as of Fri, Jun 24, 2005

	Vintage:	2003	2004	2005	2006
Current holdings of Exchange Allowances		9779	9656	9604	9496
Current holdings of Exchange Offsets		0	0	0	0
Current holdings of Exchange Early Action Credits		0	0	0	0
Total current holdings of CFIs		9779	9656	9604	9496

Exchange Allowances:

	Vintage:	2003	2004	2005	2006
Allocation of Exchange Allowances on the basis of emission reduction targets		9900	9800	9700	9600
Auction pool withholdings		-99	-98	-97	-96
Net Delivered Exchange Allowances from trades via CCX Trading Platform		-22	-46	1	-8
Current holdings of Exchange Allowances		9779	9656	9604	9496

Exchange Offsets:

	Vintage:	2003	2004	2005	2006
Net Exchange Offsets bought or sold via the CCX Trading Platform		0	0	0	0
Current holdings		0	0	0	0

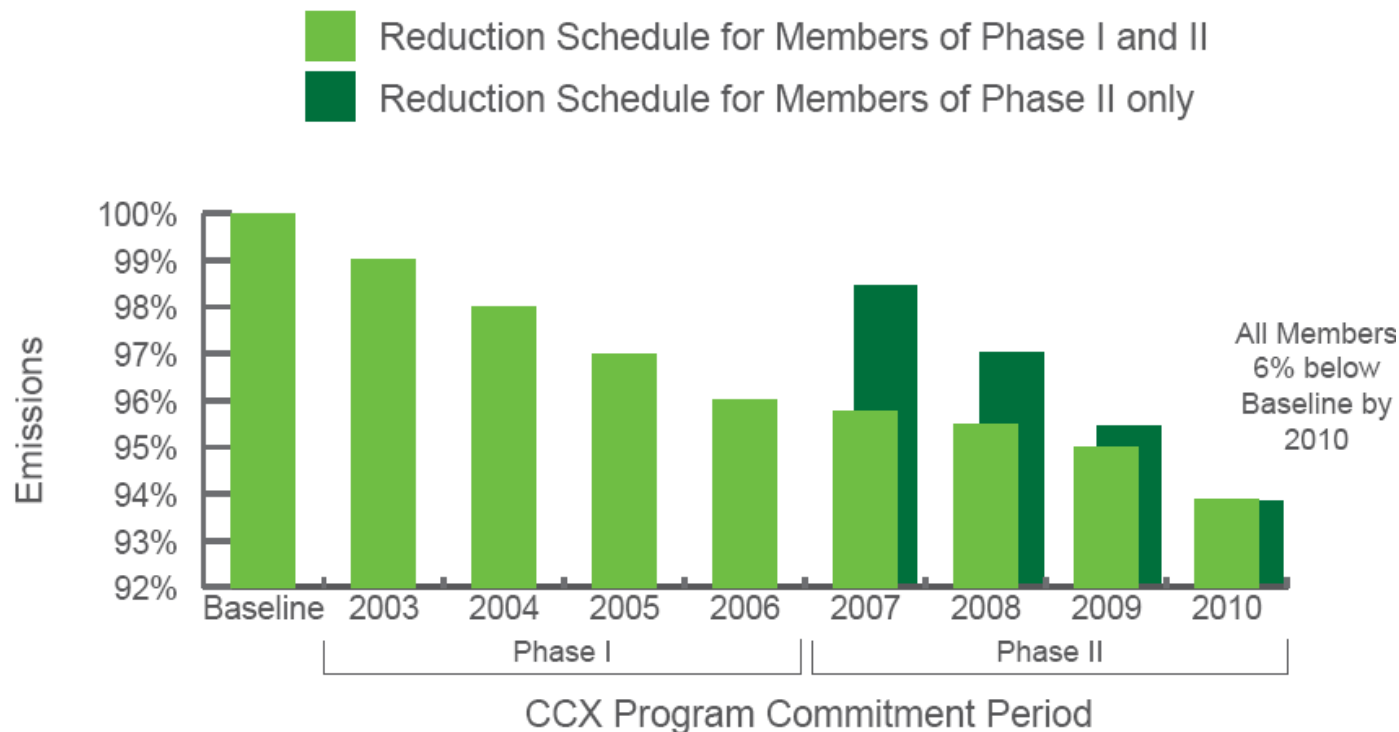


Reduce

Phase I: Members made legally binding commitments to reduce or trade 1% per year from 2003-2006, for a total of 4% below baseline.

Phase II: Members make a legally binding commitment to reduce to 6% below baseline by 2010.

Baseline = Avg. emissions from 1998-2001, emissions in 2000 (Phase II)



CCX is synergistic with and complementary to all emerging policy, precludes none – whether state, regional, national, voluntary or mandatory.



TRADE

bids and offers

completed trades
(each contract is 100mt CO₂)

ChicagoClimateExchange - mstern_ccx @ CCX View Only Company

View Admin Help Logout

Kill All Activate All Live Only Hold Bids Hold All Hold Offers

Orders Deals Greenhouse Gases

Strip	+	-	Sell	Qty	Bid	Offer	Qty	Buy	High	Low	Last	WVAP	Volume	+	-
Vintage 2003	+	-		100	1.17	1.24	20		1.17	1.10	1.17	1.15	125	+	-
				100	1.16	1.25	100				1.15				
				50	1.14						1.13				
				10	1.11						1.10				
				100	1.10										
Vintage 2004		-		50	1.17	1.23	20		1.18	1.15	1.18	1.17	100		-
				100	1.17	1.25	50				1.17				
				20	1.15						1.16				
				100	1.12						1.15				
Vintage 2005	+	-		100	1.17	1.23	20		1.19	1.17	1.17	1.17	435	+	-
				100	1.16	1.25	50				1.19				
				20	0.95						1.17				
											1.17				
											1.17				
Vintage 2006	+	-		100	1.17	1.24	10		1.19	1.16	1.17	1.18	351	+	-
				50	1.16						1.19				
				100	1.14						1.18				
											1.17				
											1.17				

CCX CFI - Carbon Financial Instrument - Vintage 2006, 100 @ 1.17 (Oct 04, 2004 11:56:00 CDT) <<BLOCK>>

CCX CFI - Carbon Financial Instrument - Vintage 2005, 100 @ 1.17 (Oct 04, 2004 11:55:00 CDT) <<BLOCK>>

CCX CFI - Carbon Financial Instrument - Vintage 2005, 100 @ 1.19 (Oct 04, 2004 10:54:37 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2006, 100 @ 1.19 (Oct 04, 2004 10:53:18 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2006, 1 @ 1.18 (Oct 04, 2004 10:24:48 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2004, 20 @ 1.18 (Oct 04, 2004 10:17:23 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2004, 20 @ 1.17 (Oct 04, 2004 10:14:24 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2003, 10 @ 1.17 (Oct 04, 2004 10:14:21 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2006, 20 @ 1.17 (Oct 04, 2004 10:13:40 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2006, 100 @ 1.17 (Oct 04, 2004 10:13:07 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2006, 20 @ 1.17 (Oct 04, 2004 10:13:07 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2005, 100 @ 1.17 (Oct 04, 2004 10:12:41 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2004, 50 @ 1.16 (Oct 04, 2004 10:12:20 CDT)

CCX CFI - Carbon Financial Instrument - Vintage 2005, 100 @ 1.17 (Oct 04, 2004 10:12:06 CDT)

12:28:53 CDT



CCX Emission Offset Types

- Offset projects sequester or eliminate GHGs, are verified and sold to buyers seeking reductions

Current pre-defined offset categories:

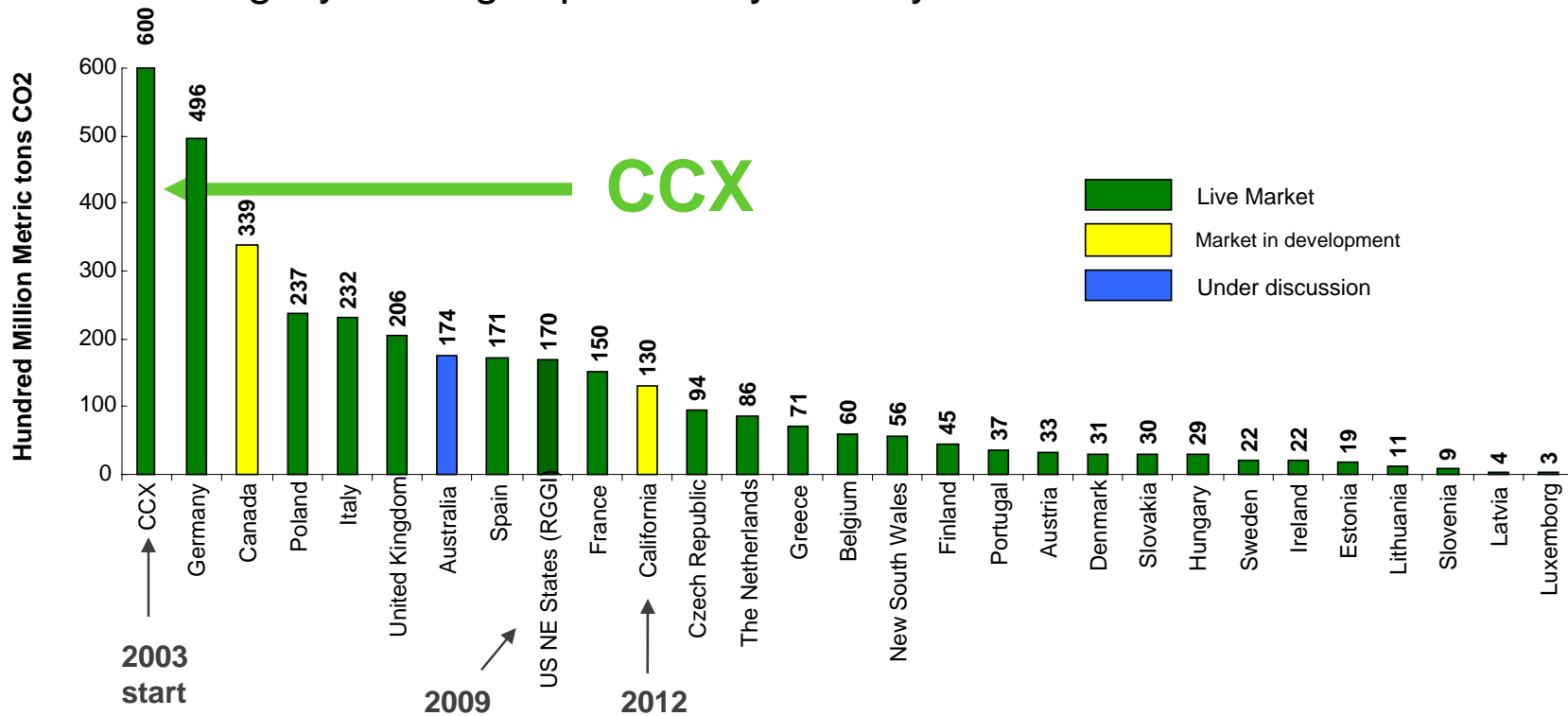
- Agricultural Methane
- Landfill Methane
- Agricultural Soil Carbon
- Forestry
- Renewable Energy
- Coal Mine Methane
- Rangeland Soil Carbon
- Others in development

Independent verification required by authorized entities: SGS, DNV, First Environment, BvQi



Size of Live, Emerging, Possible GHG Markets

CCX includes more industrial emissions under its legally binding cap than any country in the world



CCX[®] Scale

- CCX Member-wide emissions are equivalent to:
 - 15% of U.S. stationary emission sources
 - 25% of emissions covered under EU ETS
- CCX Members represent:
 - 10% of Fortune 100 Companies
 - 17% of Dow Jones
 - 20% of U.S. power sector



CCX Members: Corporate and Utility Leaders

A Selection of Members



CCX Members

- **Members with Operations in South Carolina**

- Lancaster County Solid Waste
- Bayer Corporation
- DuPont
- Intel Corporation
- Domtar
- International Paper
- MeadWestvaco
- Roanoke Electric Steel Corp.
- Temple Inland Inc
- Eastman Kodak Company
- Smurfit-Stone
- Square D/Schneider Electric N.A.
- Veolia

- **Members with Operations in North Carolina**

- Bank of America
- Baxter International, Inc.
- Bayer Corporation
- Dow Corning
- DuPont
- Duratex S.A.
- IBM
- Intel Corporation
- Domtar
- Interface, Inc.
- International Paper
- MeadWestvaco
- Motorola, Inc.
- Potash Corporation of Saskatchewan
- Premium Standards
- Smithfield Foods, Inc.
- Steelcase Inc.
- Temple Inland, Inc.
- Eastman Kodak Company
- Smurfit-Stone
- Veolia



CCX Members

Members with Operations in Georgia

- Interface, Inc.
- Mirant Corporation
- Abitibi-Consolidated
- Bayer Corporation
- DuPont
- Ford Motor Company
- International Paper
- Masisa S.A.
- MeadWestvaco
- Monsanto Company
- Neenah Paper
- Plum Creek
- Potash Corp of Saskatchewan
- Steelcase Inc
- Stora Enso North America
- Temple Inland Inc
- Veolia
- Waste Management, Inc.
- Bank of America
- Eastman Kodak Company
- Smurfit-Stone
- Domtar

Offset Aggregators and Providers Active in Georgia

- *Enrolled Offset Projects include Agricultural Methane, Forestry and Agricultural Soil Carbon*
- F&W Forestry Services, Inc.
- Geosyntec Consultants Inc
- Environmental Carbon Credit Pool LLC
- North Dakota Farmers Union
- Valley Wood, Inc.



Why Do Companies Join?

- Mitigate Risk (fiscal, operational, regulatory, reputational)
 - Investor research, shareholders, insurance and rating agencies
- Financial Opportunities
 - Understand carbon price and future price impacts
 - Carbon Project Finance (debt, equity)
 - Revenue from trading
- Preserve Early Action
 - Third party standardized verification (FINRA)
- Influence Design and Policy
 - Influence design of mandatory programs (e.g. grandfather vs. auction, rate recovery, etc.)
 - Speak from experience, gain credibility on issues of what works and what does not
 - Be ready for any GHG mitigation mandate



A Mandated Carbon Constraint is Coming

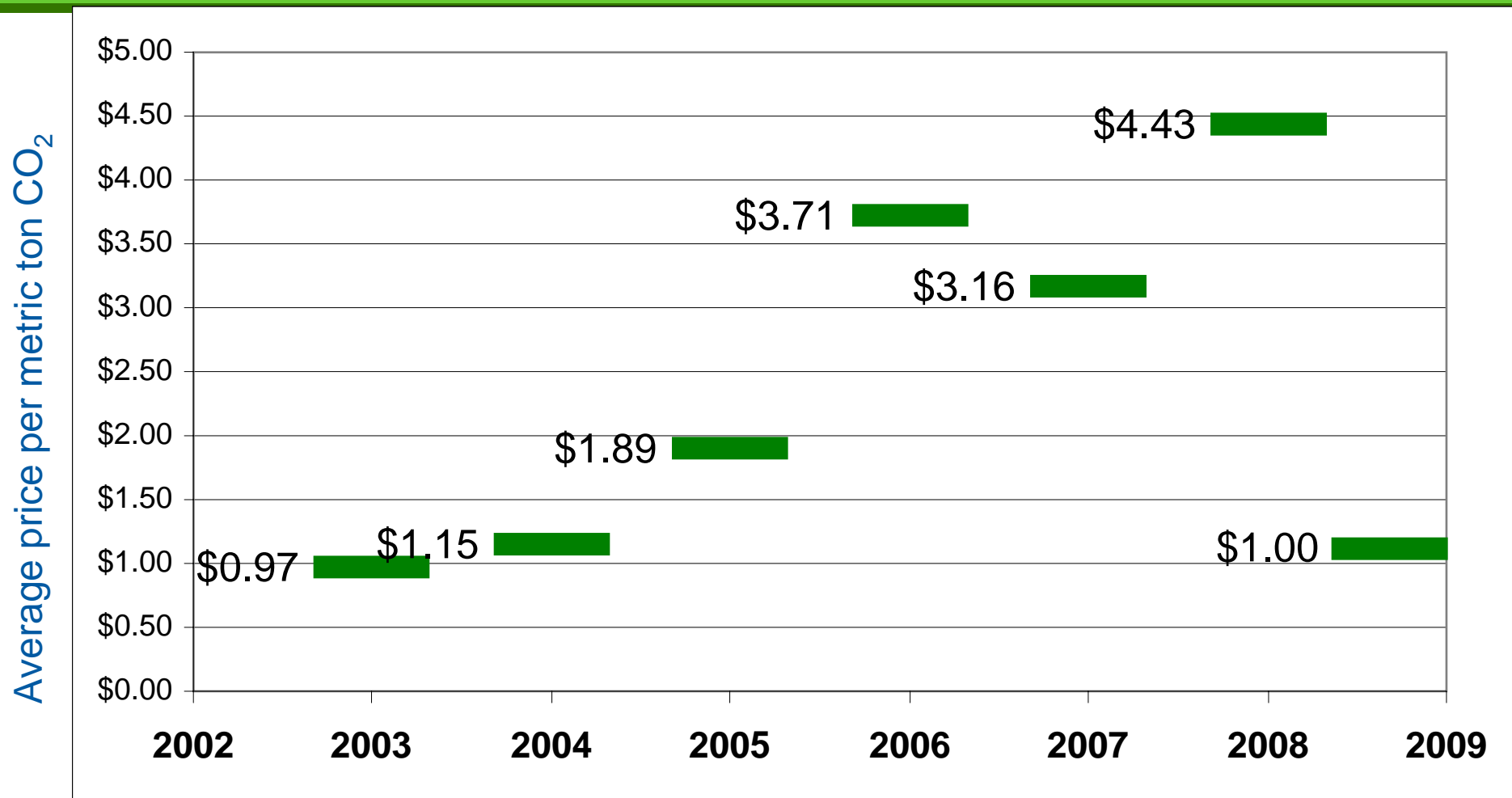
- Waxman-Markey Bill
 - Passed the House in July 2009
 - 17% carbon emission reduction below 2005 by 2020
 - 80% below 2005 by 2050

Also contains...

- *Renewable energy standards (6% in 2012, 20% in 2020)*
 - *Investments in clean energy technology*
 - *Energy efficiency standards for buildings, vehicles, appliances*
- Senate Committee Action deadline of September 28th, 2009



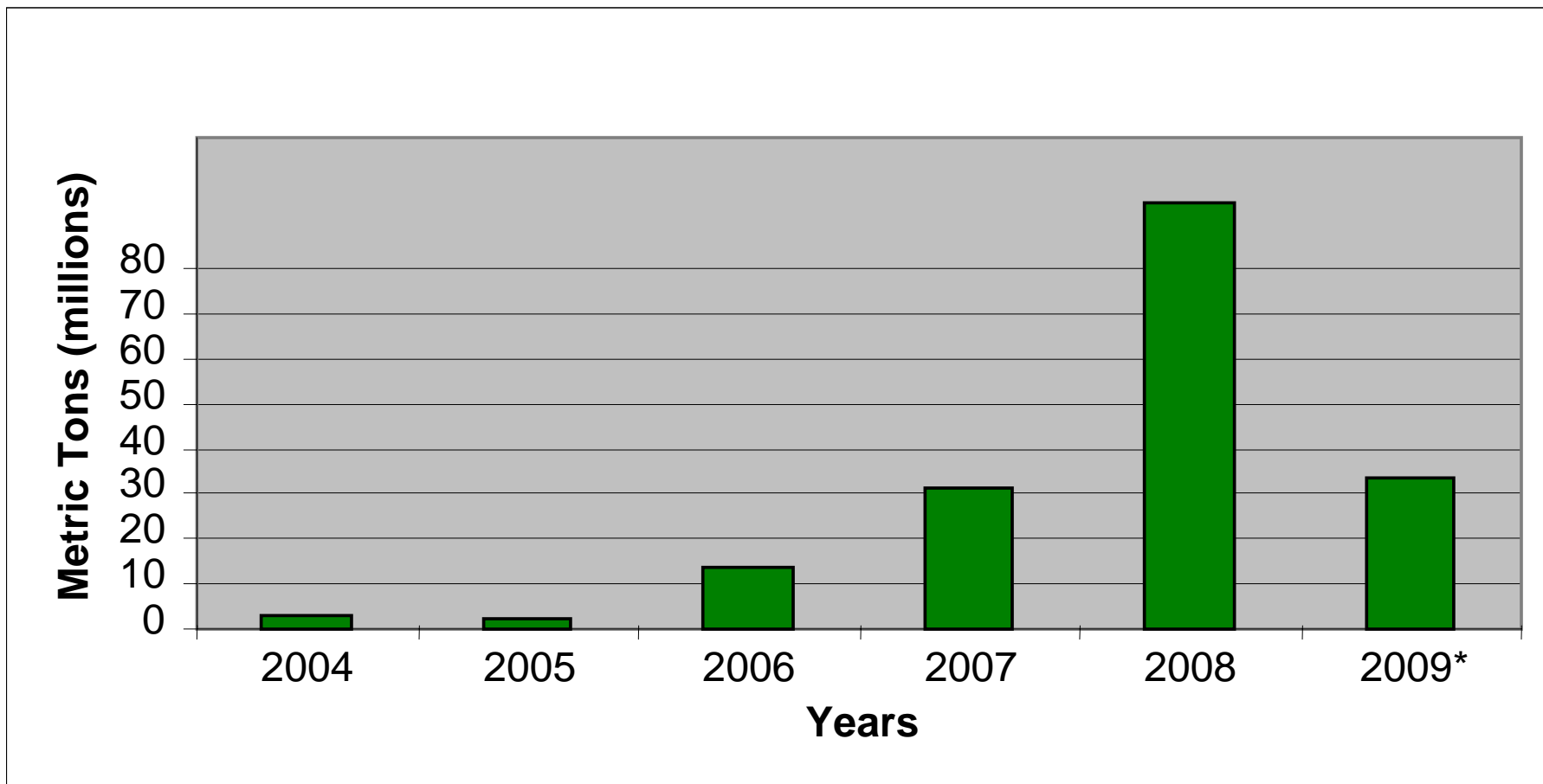
Annual Average* Price for CCX Carbon Financial Instruments 2003-Q2 2009



* Volume-weighted average for spot market trades



CFI[®] Historic Volumes (metric tons)



*As of close 7/31/2009



THANK YOU

Questions?

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CCX Membership (400 and growing)

Aerospace & Equipment

Rolls-Royce
United Technologies

Agricultural Products

Agrium U.S. Inc.
Cargill, Incorporated
Monsanto Company

Automotive

Ford Motor Company

Beverage Manufacturing

New Belgium Brewing

Chemicals

Dow Corning
DuPont
Potash Corporation
Rhodia Energy Brasil Ltd.
US Salt LLC

Coal Mining

Jim Walter Resources, Inc.
PinnOak Resources LLC

Commercial Interiors

Knoll, Inc.
Steelcase Inc.

Counties & States

King County, Washington
Miami-Dade County, Florida
Sacramento County, California
State of Illinois
State of New Mexico

Diversified Manufacturing

Eastman Kodak Company

Environmental Services

Atlantic County Utilities Authority
Lancaster County Solid Waste
Management Authority
Veolia Environmental Services
North America Corp.
Wasatch Integrated Waste
Management Authority
Waste Management, Inc.

Electric Power

AGL Hydro Partnership
Allegheny Energy Inc.
Alliant Energy
American Electric Power
American Municipal Power-Ohio
Associated Electric Cooperative, Inc.
Avista Corporation
Central Vermont Public Service
DTE Energy Inc
Duquesne Light Company
Green Mountain Power
Hoosier Energy Rural Electric Coop.
Manitoba Hydro
NRG Power Marketing Inc.
Puget Sound Energy, Inc.
Reliant Energy Services Inc.
TECO Energy, Inc.

Electronics

Motorola, Inc.
Sony Electronics Inc.
Square D/Schneider Electric



CCX Membership, contd.

Ethanol Production

Corn Plus LLP

Financial Institutions

Bank of America Corporation

Food Processing

Premium Standard Farms

Smithfield Foods, Inc.

Forest Products

Abitibi-Consolidated

Aracruz Celulose S.A.

Boise Inc.

Cenibra Nipo Brasileira S.A.

International Paper

Klabin S.A.

Masisa S.A.

MeadWestvaco Corp.

Neenah Paper Incorporated

Stora Enso North America

Suzano Papel E Celulose SA

Tembec Industries Inc.

Temple-Inland Inc

Manufacturing

Bayer Corporation

Honeywell International

Interface, Inc.

Ozinga Bros., Inc.

Smurfit-Stone

Municipalities

City of Aspen

City of Berkeley

City of Boulder

City of Chicago

City of Oakland

City of Melbourne, Australia

City of Portland

Petrochemicals

Petroflex Industria e Comercio

Pharmaceuticals

Abbott Labs

Baxter International, Inc.

Recreation

Aspen Skiing Company

Retail

Safeway, Inc.

Technology

Freescale Semiconductor

IBM

Intel Corporation

STMicroelectronics

Transportation

Amtrak

San Joaquin Regional Rail

University

Hadlow College

Michigan State University

University of Idaho

University of Iowa

University of Minnesota

University of Oklahoma

Tufts University



CCX Membership (Participant Members)

- Offset Provider: Owner of an Offset Project that registers and sells Offsets on its own behalf.
- Offset Aggregator: Entity that serves as the administrative representative, on behalf of Offset Project owners, of multiple Offset- generating projects.
- Liquidity Provider: Entity or individual who trades on the Exchange for purposes other than complying with the CCX emissions reduction schedule, such as market makers and proprietary trading groups.

Selected Offset Aggregators

3 Phases Energy Services
Carbon Farmers
Cargill, Inc
CO2 Australia Limited
Delta Institute
Econergy
Ecosecurities
Environmental Credit Carbon Pool
Environmental Credit Corp.
First Capitol Risk Management
Intrepid Technologies, Inc.
Iowa Farm Bureau
Kentucky Corn Growers Assoc.
National Carbon Offset Coalition
North Dakota Farmers Union
Rice Dairy LLC
Standard Carbon
Xi'an Zhongyang Electric Co.

Selected Liquidity Providers

Arreon Carbon
Amerex Energy
Bank of America
Black River Clean Energy
Breakwater Trading
Calyon Financial, Inc.
Cargill Power Markets
Evolution Markets
FCT Europe Ltd.
First New York Securities LLC.
Goldenberg, Hehmeyer & Co.
Haley Capital Management
JP Morgan Ventures Energy
Lehman Brother Commodity
Marquette Partners
Natsource LLC
Peregrine Financial Group
Rand Financial Services, Inc.
Shatkin Arbor, Inc.
Swiss Re Financial Products Corp.
Tradelink

Selected Offset Providers

Arreon Carbon UK Ltd.
Beijing Shenwu Thermal Energy
CO2 Australia
Ecosecurities
Energy Trading Co
Commonwealth Resource Management Corp
Gallo Cattle Company
Hubei Sanhuan Development Corporation
Lugar Stock Farm
Precious Woods Holdings
RCM International LLC
Sexton Energy LLC
Sustainable Forestry Management, Ltd.
Vessels Coal Gas Inc.
Weber County



CCX Member Recognition in Major Publications

The New York Times

THE WALL STREET JOURNAL.

*As Kyoto Protocol Comes Alive, So Do
Pollution-Permit Markets*

The Washington Post

Benefits of Cutting Emissions

TIME

*Heroes for the
Green Century*

FitchRatings

Le Monde

*Le Protocole de Kyoto: Les Firmes
Américaines sous contraintes*

BusinessWeek

A View From the Peak

FINANCIAL TIMES

CCX Takes Chicago by Storm

Chicago Tribune

*Big Business to Buy, Sell
Greenhouse Gas Credits*

**Environmental
Finance
MAGAZINE**

Economist

*Carbon Emissions Trading
A Green Future: the
Creation of a New Exchange*

