

Agricultural Outlook Forum
U.S. Department of Agriculture

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Where the World Trades Carbon: CCX: The U.S. Carbon and Environmental Derivatives Exchange

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WHERE THE
World
TRADES
CARBON



CCX[®] : The U.S. Carbon and Environmental Derivatives Exchange

Implementing Policy: Mandatory Emissions Markets

Hosted by the Climate Exchange family

| Mandatory Emissions Program | Climate Exchange Market/start | Regulator |
|--|---------------------------------------|--|
| EUETS | European Climate Exchange/2005 | U.K Financial Services Authority |
| UN Certified Emission Reductions | European Climate Exchange/2007 | U.K Financial Services Authority |
| Canada | Montreal Climate Exchange/2008 | Quebec Autorité des marchés financiers (AMF) |
| Regional Greenhouse Gas Initiative (N.E. U.S.) | Chicago Climate Futures Exchange/2008 | CFTC |
| U.S. Federal Mandatory <i>CFI</i> [®] -US | Chicago Climate Futures Exchange/2008 | CFTC |
| USEPA SO₂ USEPA NO_x | Chicago Climate Futures Exchange/2004 | CFTC |



Anticipating Policy: Voluntary Emissions Markets

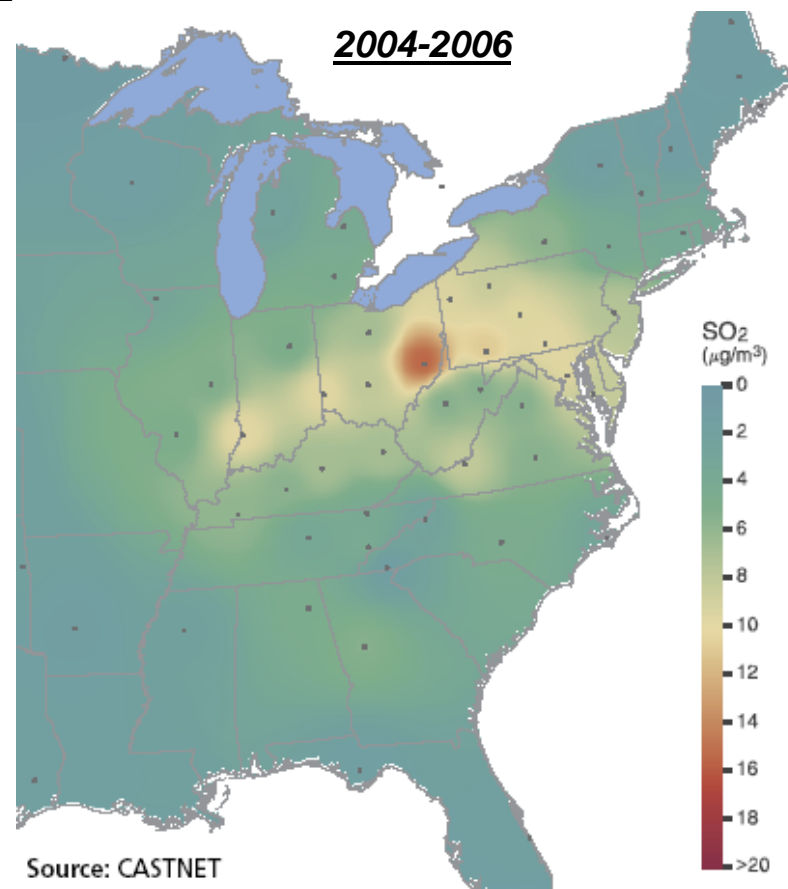
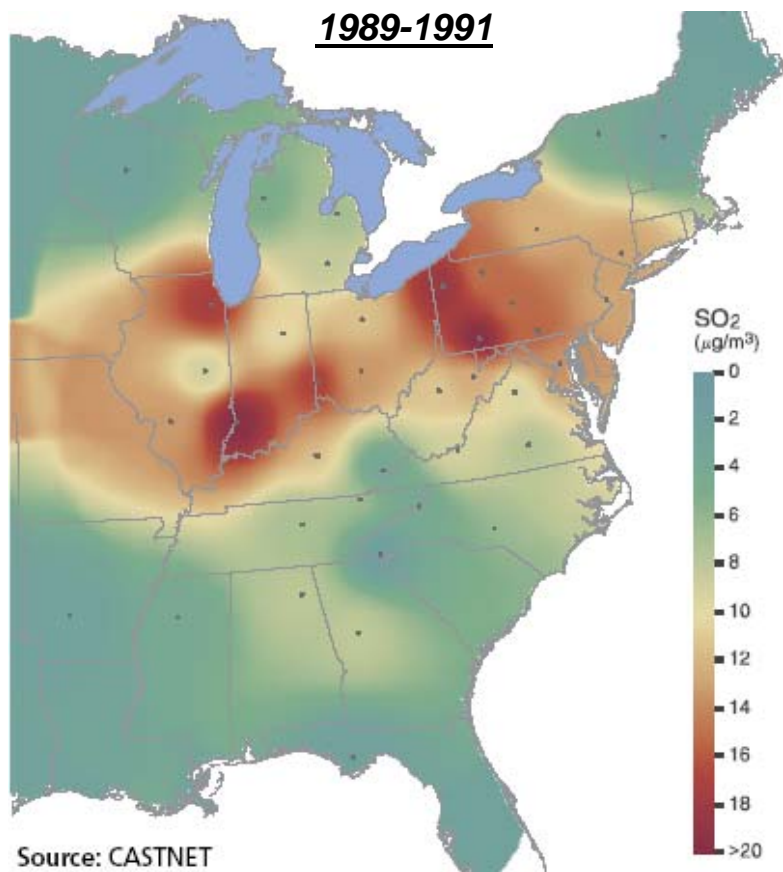
Hosted by the Climate Exchange family

| Principal Location | Climate Exchange Market | Regulation |
|---|---|---|
| United States (with Canada, Brazil, others) | Chicago Climate Exchange (spot/2003), Chicago Climate Futures Exchange (futures, options/2006): <i>carbon/GHGs</i> | Exempt Commercial Market under CFMA; FINRA provides market surveillance |
| China | Tianjin Climate Exchange/2008: <i>SO₂, C.O.D., CERs, energy efficiency</i> | Tbd |
| India | India Climate Exchange/2009: <i>carbon/GHGs</i> | Tbd |



Cap and Trade is a Major Success in the U.S.: SO₂ air pollution levels before and after 1990 CAAA

Annual Mean Ambient SO₂ Concentration



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.

What is Chicago Climate Exchange?

Chicago Climate Exchange (CCX[®]) is the world's first and North America's only voluntary, legally binding greenhouse gas reduction, verification, registry and trading program for emission sources and offset projects in North America, Brazil and globally.

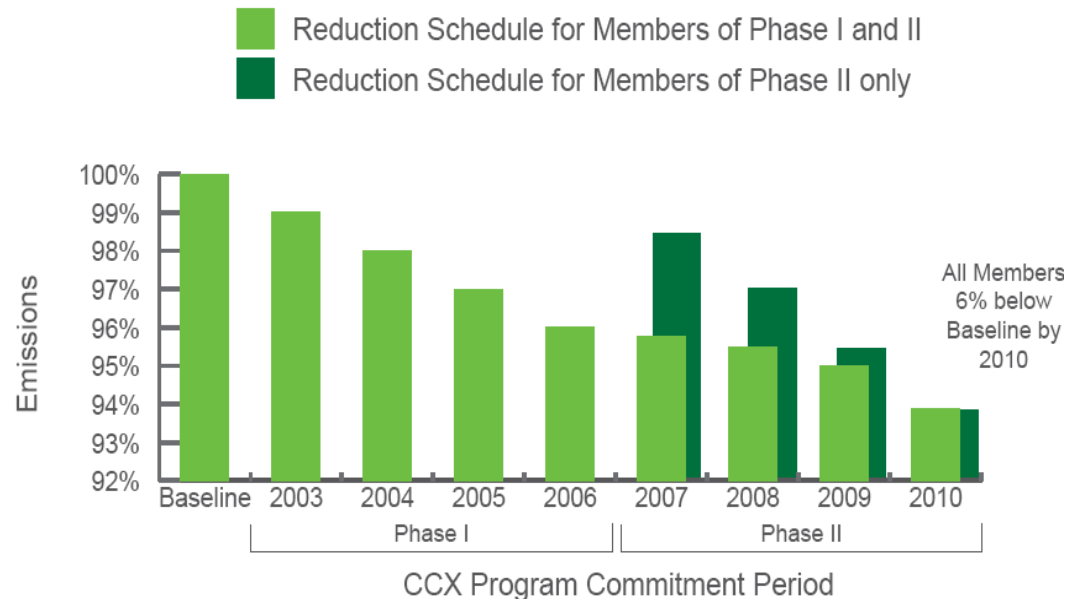


CCX Market Architecture (2003-2010)

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.

CCX Membership (Over 400 - All Sectors)

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

DuPont
Rhodia Energy Brasil Ltda

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

Electronics

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

Environmental Services

Atlantic County Utilities
Lancaster County Solid WMA
Veolia Environmental Services
Wasatch Integrated WMA
Waste Management, Inc.

Electric Power

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



CCX Membership

Ethanol Production

Corn Plus LLP

Financial Institutions

Bank of America

Food Processing

Meister Cheese Co. LLC
Premium Standard Farms
Smithfield Foods, Inc.

Forest Products

Abitibi-Consolidated
Aracruz Celulose S.A.
Cenibra Nipo Brasileira S.A.
International Paper
Klabin S.A.
Masisa S.A.
MeadWestvaco Corp.
Neenah Paper Incorporated
NewPage
Suzano Papel E Celulose SA
Tembec Industries Inc.
Temple-Inland Inc

Manufacturing

Bayer Corporation
Bosch
Eastman Kodak Company
Interface, Inc.
Smurfit-Stone

Municipalities

City of Aspen
City of Berkeley
City of Boulder
City of Chicago
City of Fargo
City of Oakland
City of Melbourne, Australia
City of Portland

Petrochemicals

Petroflex Industria e Comercio

Pharmaceuticals

Baxter International, Inc.

Recreation

Aspen Skiing Company

Retail

Safeway, Inc.

Technology

Freescale Semiconductor
IBM
Intel Corporation
STMicroelectronics

Transportation

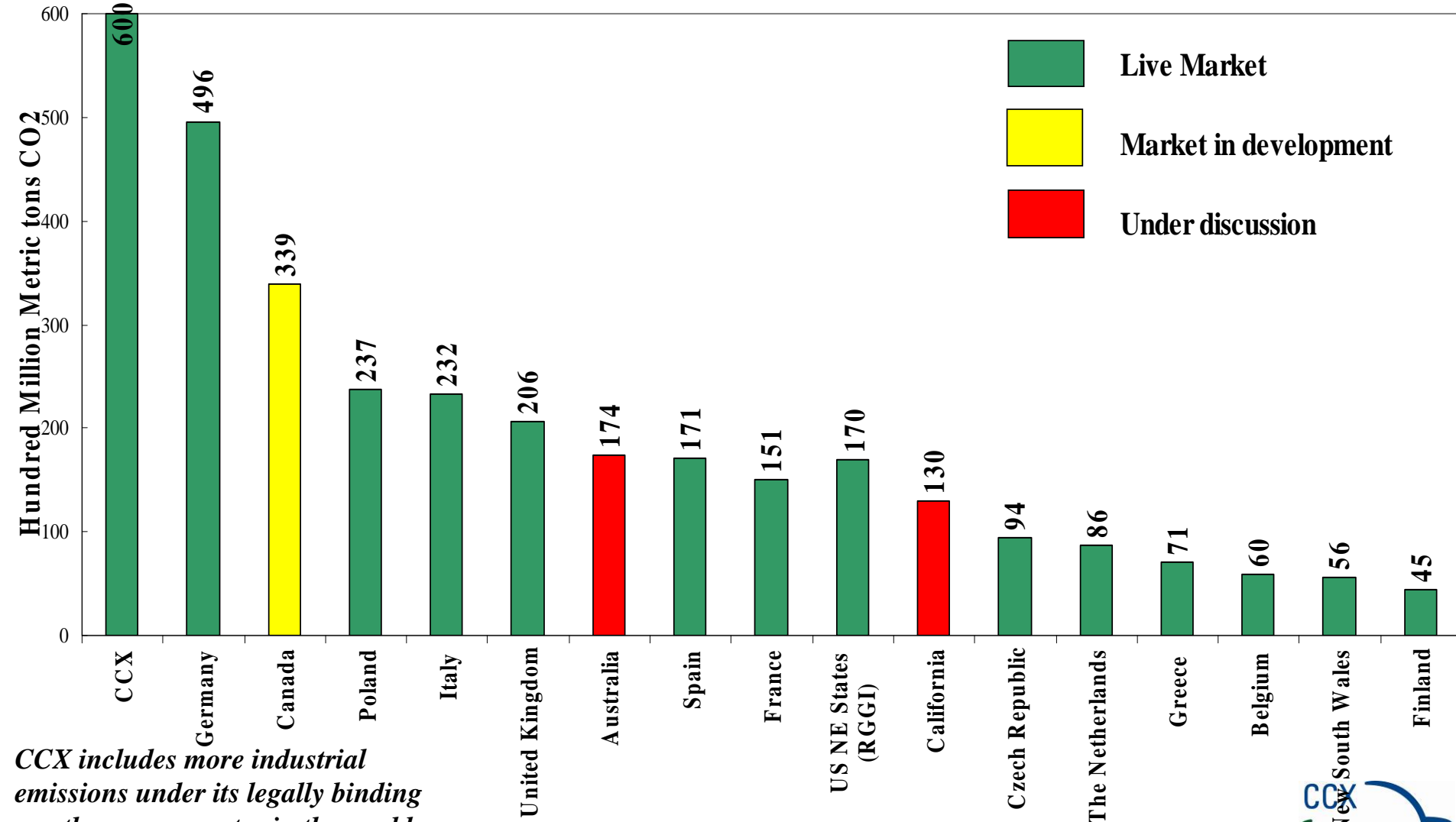
Amtrak
San Joaquin Regional Rail

University

UC San Diego
Hadlow College
Michigan State University
University of Idaho
University of Iowa
University of Minnesota
University of Oklahoma



Size of Live, Emerging, Possible GHG Markets



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



Plausible *Near-term* Scenarios for U.S. Land-based GHG Mitigation

| Action | Plausible Near-term Scale (mtCO ₂ /yr) | Annual Value at \$30/mtCO ₂ |
|--------------------------------|---|--|
| Soils BMP (CT, grazingland) | 100 million | \$3 billion |
| Forestation, forest management | 250 million | \$7.5 billion |

Further opportunities arise from methane capture, fertilizer management, crop-based fuels, wind/solar etc.

Source: Greenhouse Gas Mitigation Potential in U.S. Forestry and Agriculture
United States Environmental Protection Agency, November 2005

CCX Offset Projects

- As science directs, foster emission reductions all sectors: low cost, win-win
- Landfill, agricultural and coalmine methane capture/destruction
- Agricultural soils best management practices
- Reforestation
- Fuel switching, renewables
- All projects must be independently verified by an approved entity



Minnesota dairy farmer receives first check from sale of CCX methane-destruction Offsets

- CCX Offset Rules can be found at:

http://www.chicagoclimateexchange.com/docs/offsets/CCX_Rulebook_Chapter09_OffsetsAndEarlyActionCredits

CCX Agricultural Soil Science Technical Sub-Committee

Dr. Alan Franzluebber

USDA

Dr. Charles Rice

Kansas State University

Dr. Keith Paustian

Colorado State University

Dr. Rattan Lal

Ohio State University

Dr. Mark Liebig

Agricultural Research Service, USDA

Dr. Lee Burras

Iowa State University

Dr. Sjoerd Willem Duiker

Pennsylvania State University

Dr. Mark Alley

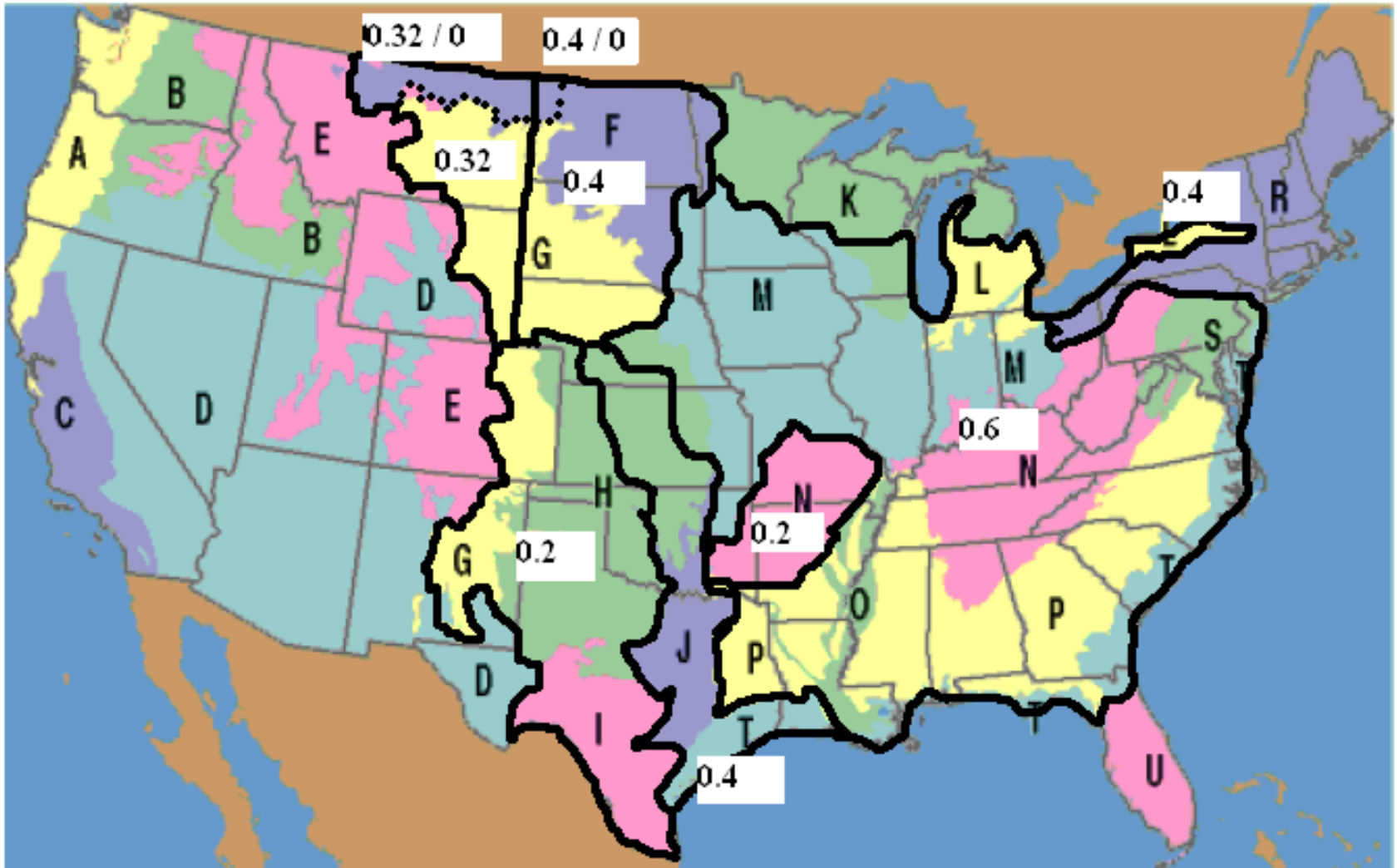
**Virginia Polytechnic Institute and State
University**

Dr. John Grove

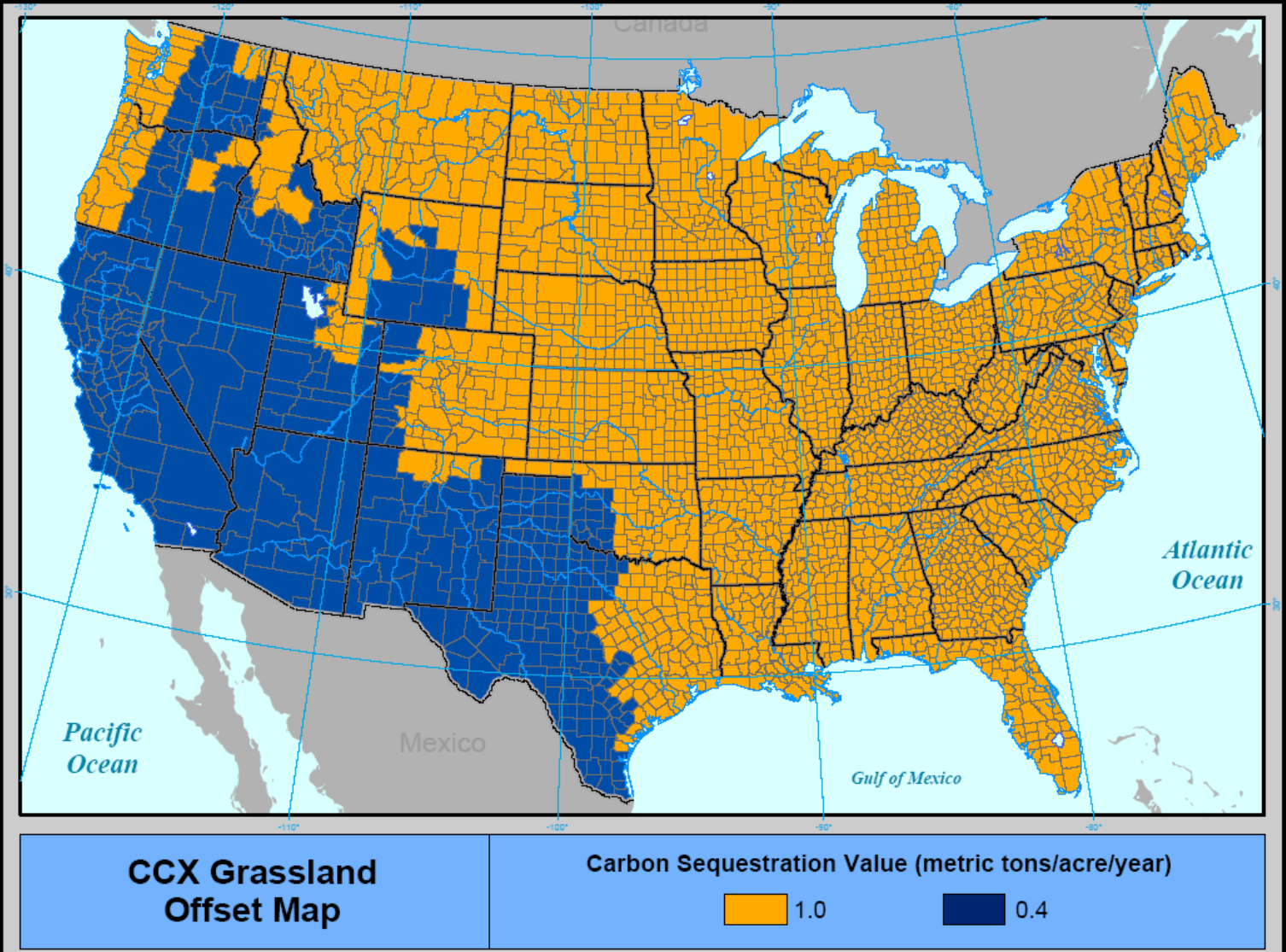
University of Kentucky



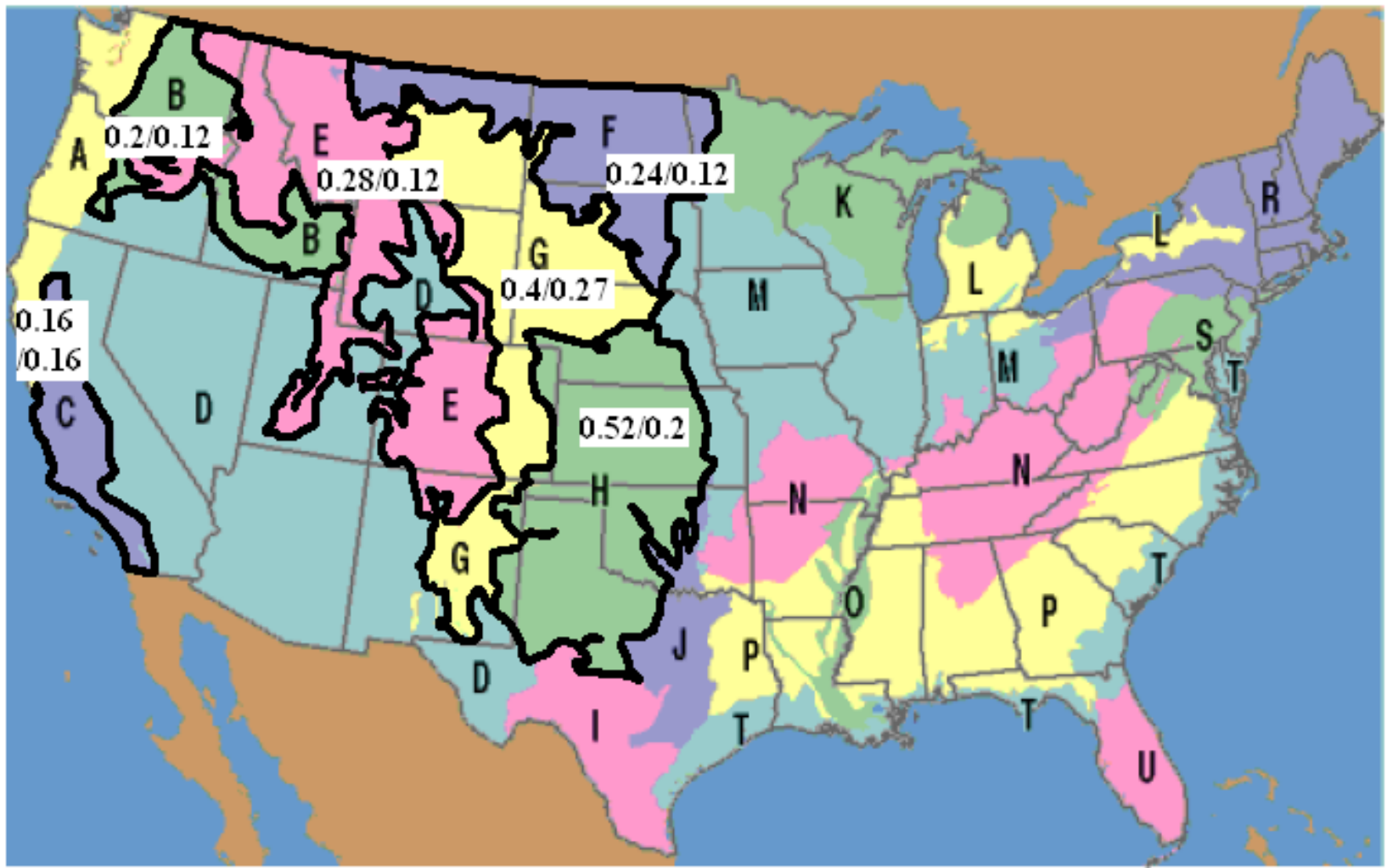
CCX Offsets Rates for Continuous Conservation Tillage (mtons/acre/year, 5-year contracts)



CCX New Grassland Offsets Crediting Rates



CCX Offsets Issuance Rates for Grazing land BMP (mtons CO₂/acre/year, higher rates apply to formerly degraded land)



CCX Participant Members (sample)

Offset Aggregators

C-Green Aggregator, LLC
Delta Institute
Environmental Carbon Credit Pool, LLC
Environmental Credit Corp.
First Capital Risk Management, LLC
Aragate/Iowa Farm Bureau
National Carbon Offset Coalition
North Dakota's Farmers Union

Offset Providers

Beijing Shenwu Thermal Energy Trading
Hubei Sanhuan
Gallo Cattle
Granger Holdings
Intrepid Technologies, Inc.
Lugar Stock Farm
Precious Woods Holdings
Sexton Energy
Sustainable Forestry Management, Ltd.

Liquidity Providers

| | | |
|----------------------------------|---------------------------------------|------------------------------------|
| AGS Specialists, LLC | Galtere International Master Fund, LP | Peregrine Financial Group |
| Amerex Energy | GFI Securities, LLC | Rand Financial Services, Inc. |
| Breakwater Trading, LLC | Goldenberg, Hehmeyer & Co. | Serrino Trading Co. |
| Calyon Financial, Inc. | Grand Slam Trading, Inc. | Shatkin Arbor, Inc. |
| Cargill Power Markets, LLC | Grey K Environmental Fund, LP | S.R. Energy, LLC |
| Eagle Market Makers, LLC | Haley Capital Management | SwissRe Financial Products Corp. |
| Evolution Markets, LLC | ICAP Energy, LLC | TEP Trading 2 Ltd. |
| EXO Investments | Kottke Associates, LLC | TradeLink, LLC |
| FCT Europe, Ltd. | The League Corp. | Tradition Financial Services, Ltd. |
| First New York Securities, LLC. | Marquette Partners, LP | TransMarket Group, LLC |
| Friedberg Mercantile Group, Ltd. | Natsource, LLC | |

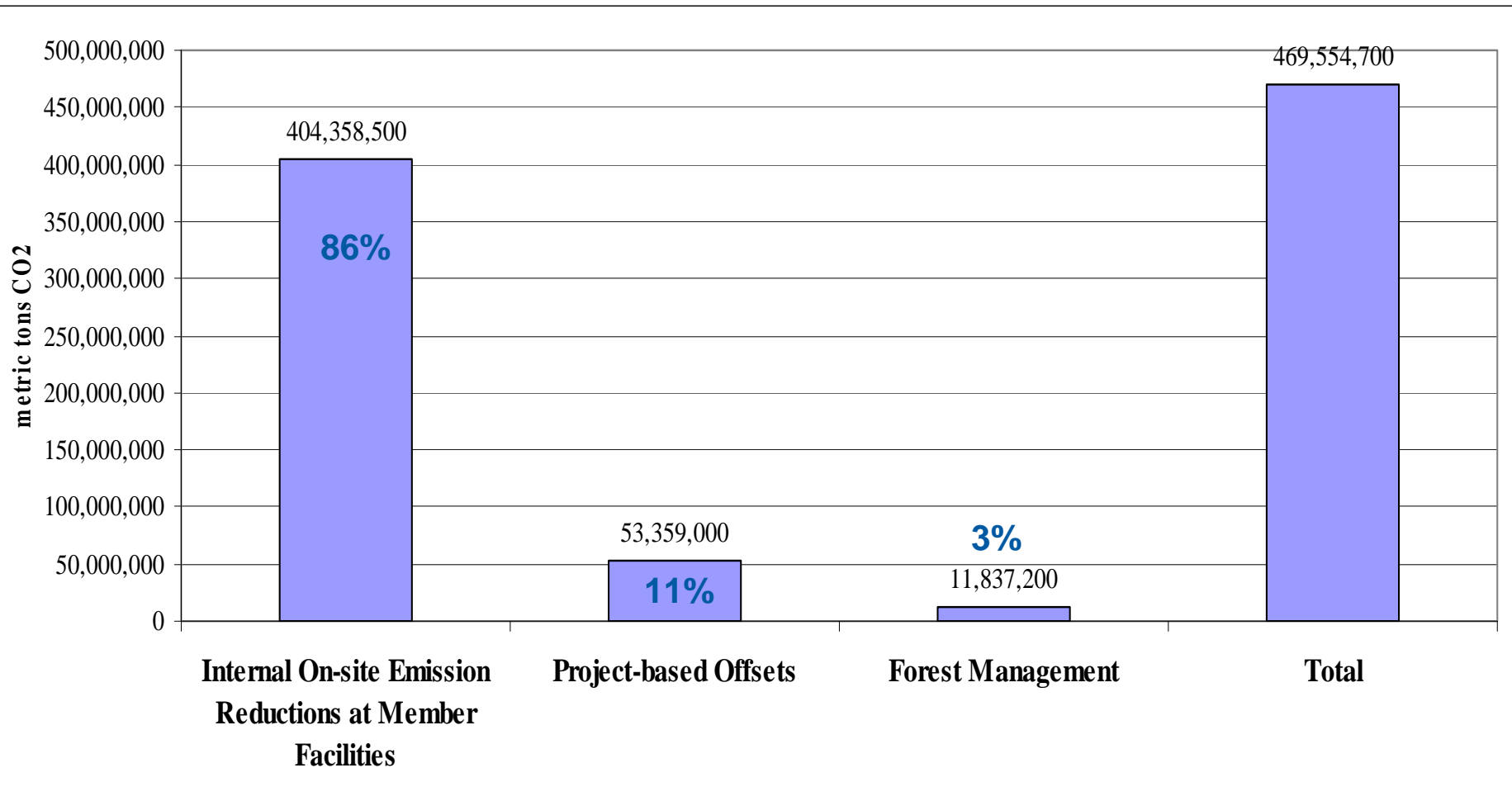


U.S. Farmer Participation in CCX

- Soils best management practices (continuous conservation tillage and grazingland BMP)
 - 10.5 million acres
 - Over 7,000 farmers and ranchers enrolled
 - Twenty-five professional verification entities approved:
 - “green jobs” employment and income is a reality at CCX
- *Tens of millions of dollars in new income from provision of global environmental services have been realized*



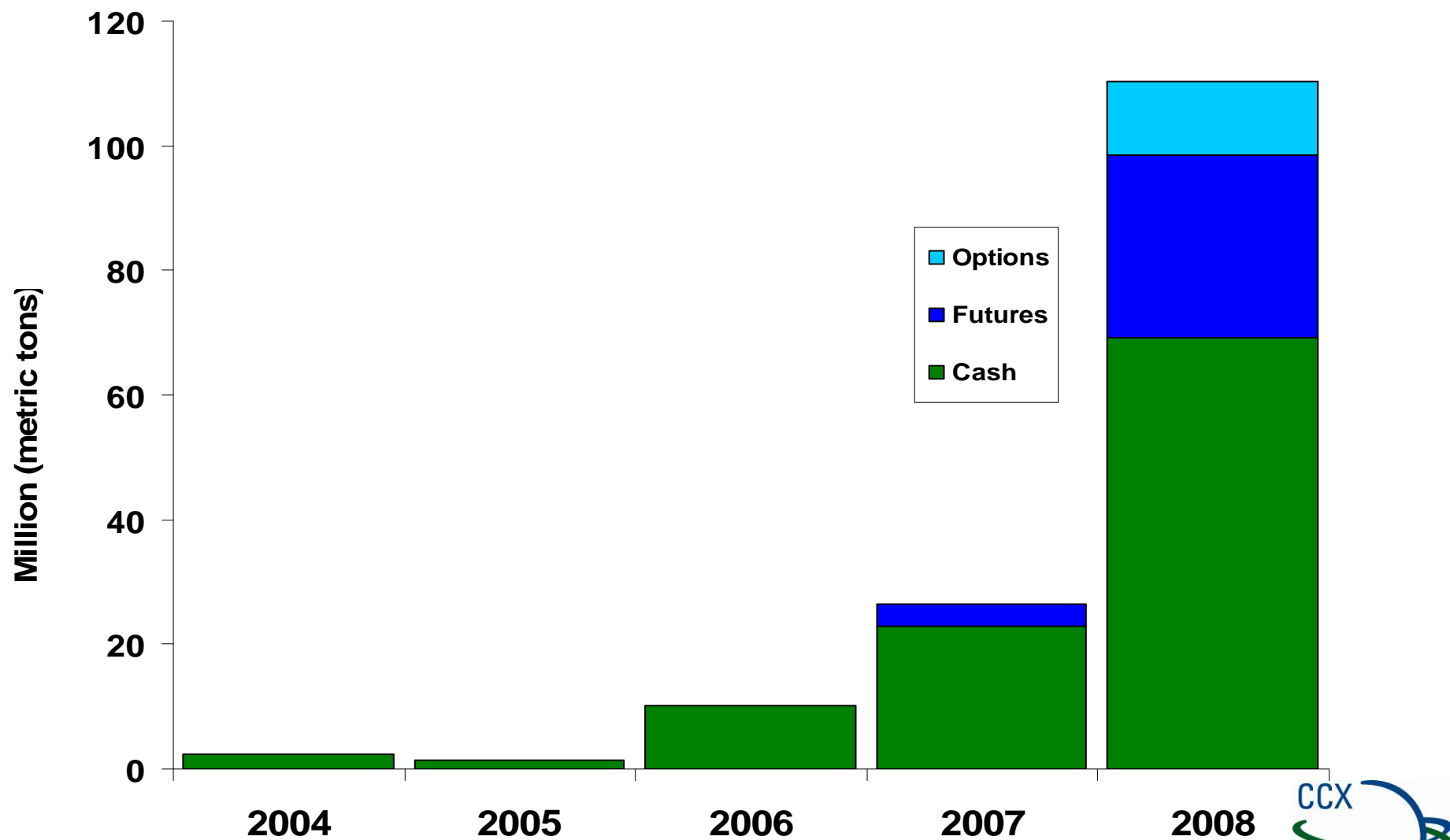
Emission Reductions and Project-based Offsets in CCX Years 2003 through 2007* (metric tons CO₂)



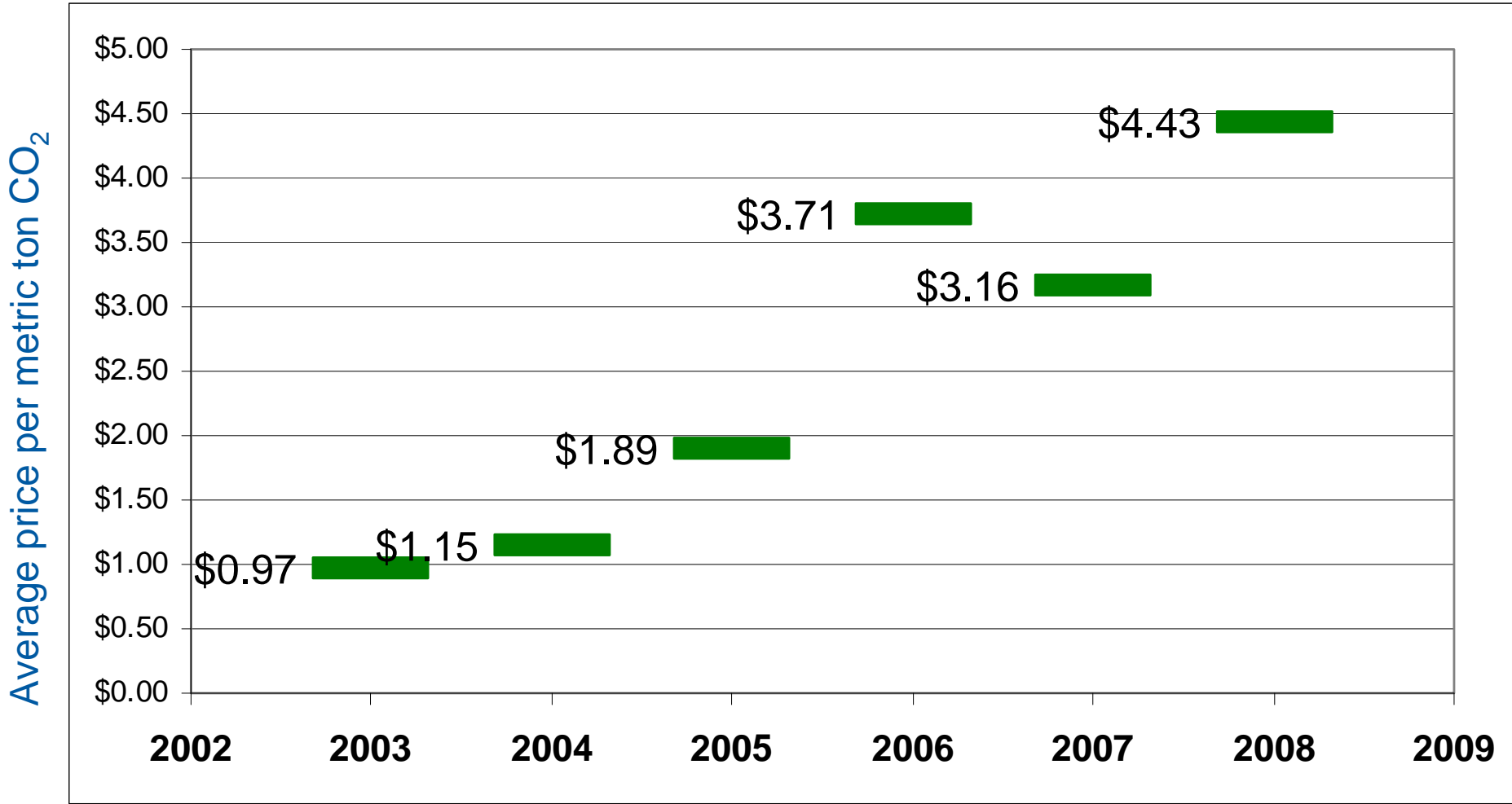
*As of 2-20-09. A portion of new member emission reductions are currently undergoing verification.



Chicago Climate Exchange Carbon Financial Instrument spot and derivatives volume 2004-2008



Annual Average* Price for CCX Carbon Financial Instruments 2003-2008



* Volume-weighted average for spot market trades



U.S. House of Representatives Purchases Emission Offsets Through CCX as Part of its “Greening the Capitol” Initiative

Auction results Announced November 1, 2007

U.S. House acquired a balanced portfolio of 30,000 metric tons CO₂ of verified U.S. domestic offset projects involving: agricultural methane, coalmine methane, landfill methane, agricultural soils, reforestation, renewable fuels*



CCX CEO, Dr. Richard L. Sandor; U.S. Representative Rahm Emanuel; U.S. House of Representatives CAO Dan Beard; U.S. Representative Dan Lipinski; U.S. Representative Mark Kirk



Views of Important Thought Leaders on U.S. Farm-based Climate Solutions

“Three, the addition of so-called carbon sinks, including those from soils, principally from farm lands and grazing lands, with appropriate methodologies and accounting. Farmers such as Senator Lugar and ranchers in the U.S. and around the world need to know that they can be a part of the solution.”

Al Gore, suggesting enhancements to an international climate treaty in his testimony to the U.S. Senate Foreign Relations Committee, January 29, 2009

Campaign webpage of President-elect Obama:

"I will also develop domestic incentives that reward forest owners, farmers and ranchers when they plant trees, restore grasslands or undertake farming practices that capture carbon dioxide from the atmosphere, creating new opportunities for rural America to help solve the climate crisis."



Bi-Partisan Views on CCX

“The Chicago Climate Exchange is providing an innovative means of involving American businesses and citizens in the effort to protect the environment...I listed my farm in Indiana on the Chicago Climate Exchange to set an example for farmers and foresters in my state and throughout America...For example, the exchange mechanism could be utilized by turning unused farmland into tree farms that sequester carbon while providing farmers with extra money... In short, American farmers could become the vanguard in using market forces to the benefit of both the environment and the pocketbook...”

Senator Richard Lugar (R-IN), Chairman of Senate Foreign Relations Committee

“To deal directly with climate change, something we failed to do in the last energy bill, we should use a market-based strategy that gradually reduces harmful emissions in the most economical way.....Right here in Chicago, the Chicago Climate Exchange is already running a legally binding greenhouse gas trading system”

Senator Barack Obama (D-IL), April 3, 2006

“The CCX is leading the way toward a future in which reducing greenhouse gases could bring not only environmental rewards, but financial ones too.”

Al Gore, from *An Inconvenient Truth*, 2006 (book version).

“What would be wrong, at least on a theoretical basis, with taking what you have come up with by way of requirements for your (CCX) members and essentially mandating that everybody in the country comply with those?”

Senator Jeff Bingaman (D-NM), Chairman Senate Energy & Natural Resources Committee, April 4, 2006

