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Agricultural Outlook Forum  
U.S. Department of Agriculture

Presented: February 26-27, 2009

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

Mike Walsh



WHERE THE  
**World**  
TRADES  
CARBON



**CCX<sup>®</sup> : 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> <sup>®</sup> -US	Chicago Climate Futures Exchange/2008	CFTC
USEPA <b>SO<sub>2</sub></b> USEPA <b>NO<sub>x</sub></b>	Chicago Climate Futures Exchange/2004	CFTC



# Anticipating Policy: Voluntary Emissions Markets

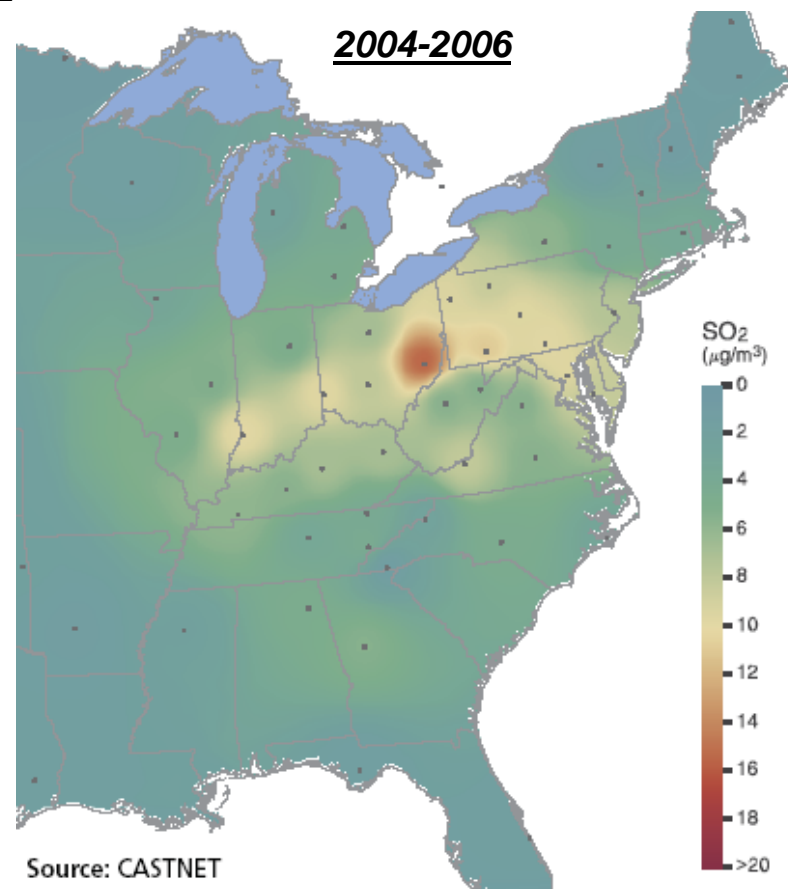
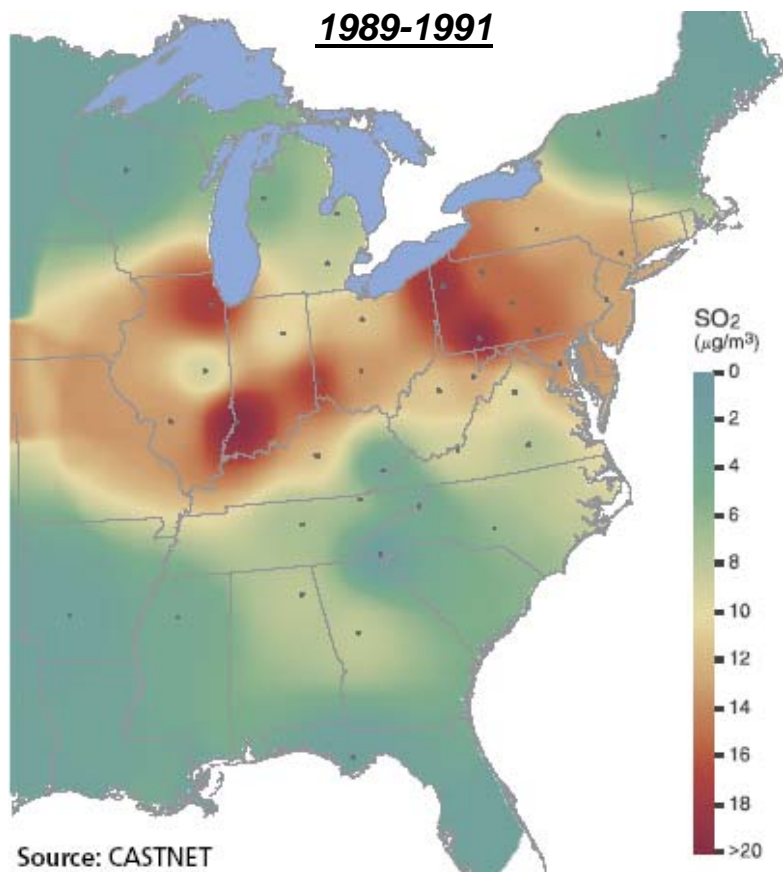
## Hosted by the Climate Exchange family

Principal Location	Climate Exchange Market	Regulation
<b>United States</b> (with Canada, Brazil, others)	Chicago Climate Exchange (spot/2003), Chicago Climate Futures Exchange (futures, options/2006): <b><i>carbon/GHGs</i></b>	Exempt Commercial Market under CFMA; FINRA provides market surveillance
<b>China</b>	Tianjin Climate Exchange/2008: <b><i>SO<sub>2</sub>, C.O.D., CERs, energy efficiency</i></b>	Tbd
<b>India</b>	India Climate Exchange/2009: <b><i>carbon/GHGs</i></b>	Tbd



# Cap and Trade is a Major Success in the U.S.: SO<sub>2</sub> air pollution levels before and after 1990 CAAA

## Annual Mean Ambient SO<sub>2</sub> Concentration



Based on EPA's latest air quality trends data the national composite average of SO<sub>2</sub> annual mean ambient concentrations decreased 48 percent between 1990 and 2005.

# What is Chicago Climate Exchange?

*Chicago Climate Exchange (CCX<sup>®</sup>) 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.*



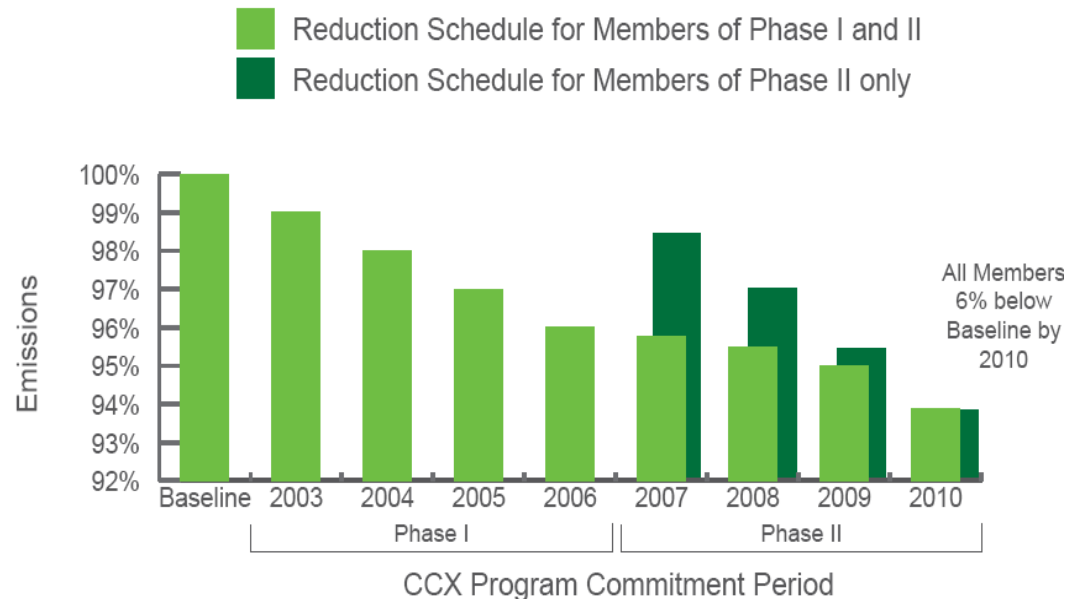


# CCX Market Architecture (2003-2010)

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**

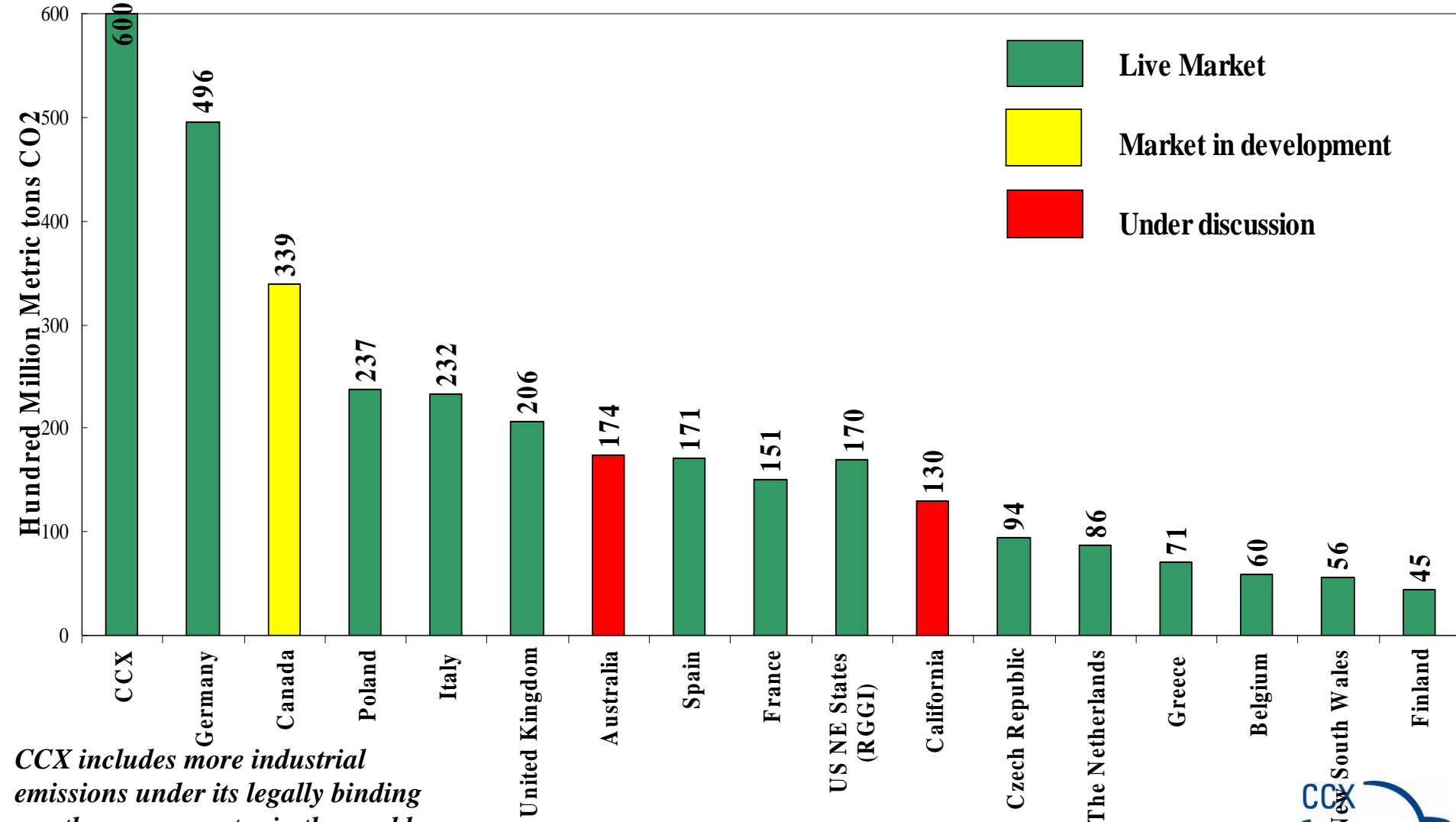
Amtrak  
San Joaquin Regional Rail

## **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 <sub>2</sub> /yr)	Annual Value at \$30/mtCO <sub>2</sub>
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](http://www.chicagoclimateexchange.com/docs/offsets/CCX_Rulebook_Chapter09_OffsetsAndEarlyActionCredits)

# CCX Agricultural Soil Science Technical Sub-Committee

**Dr. Alan Franzluebber**

**USDA**

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**Dr. Charles Rice**

**Kansas State University**

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**Dr. Keith Paustian**

**Colorado State University**

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**Dr. Rattan Lal**

**Ohio State University**

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**Dr. Mark Liebig**

**Agricultural Research Service, USDA**

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**Dr. Lee Burras**

**Iowa State University**

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**Dr. Sjoerd Willem Duiker**

**Pennsylvania State University**

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**Dr. Mark Alley**

**Virginia Polytechnic Institute and State  
University**

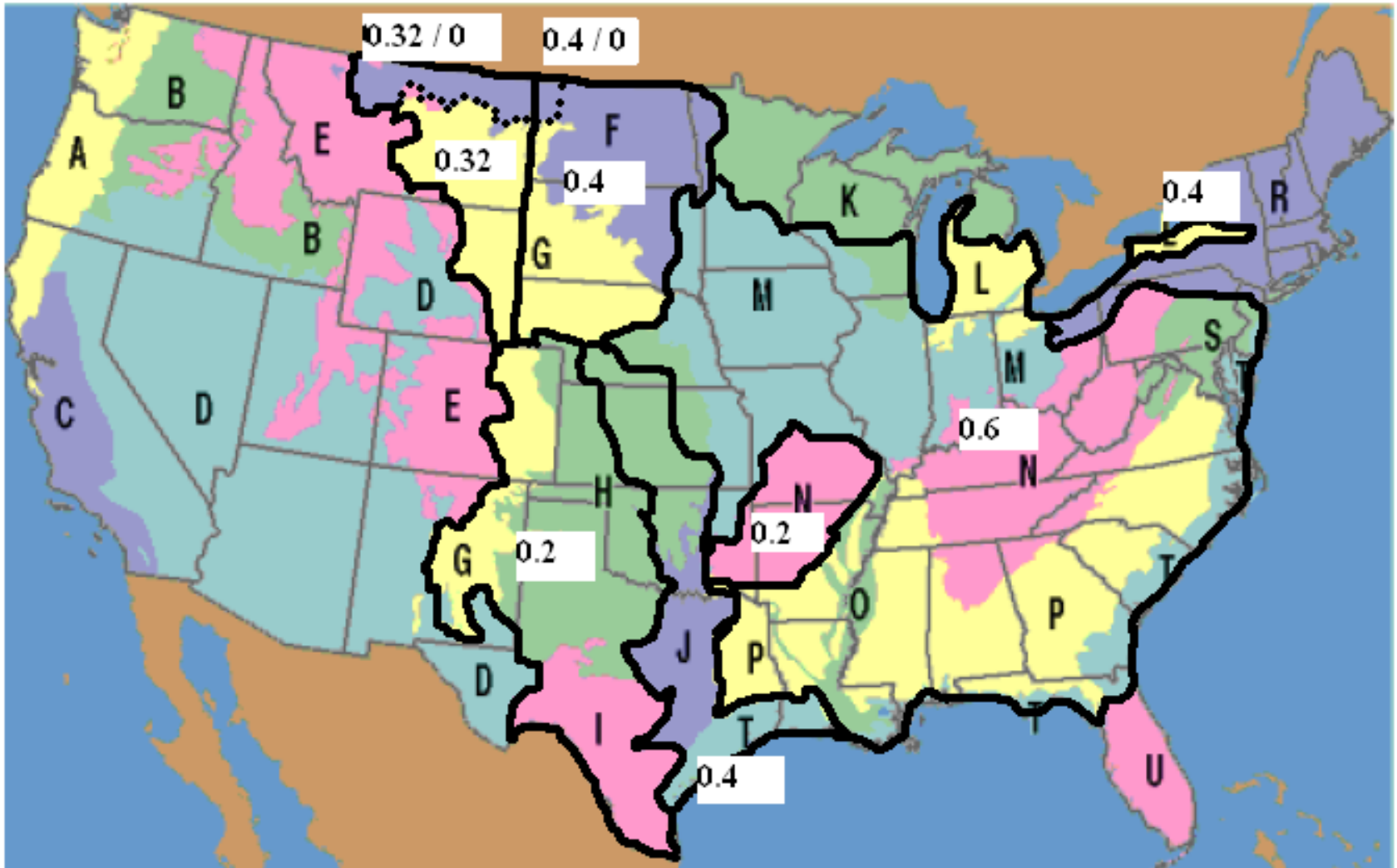
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**Dr. John Grove**

**University of Kentucky**

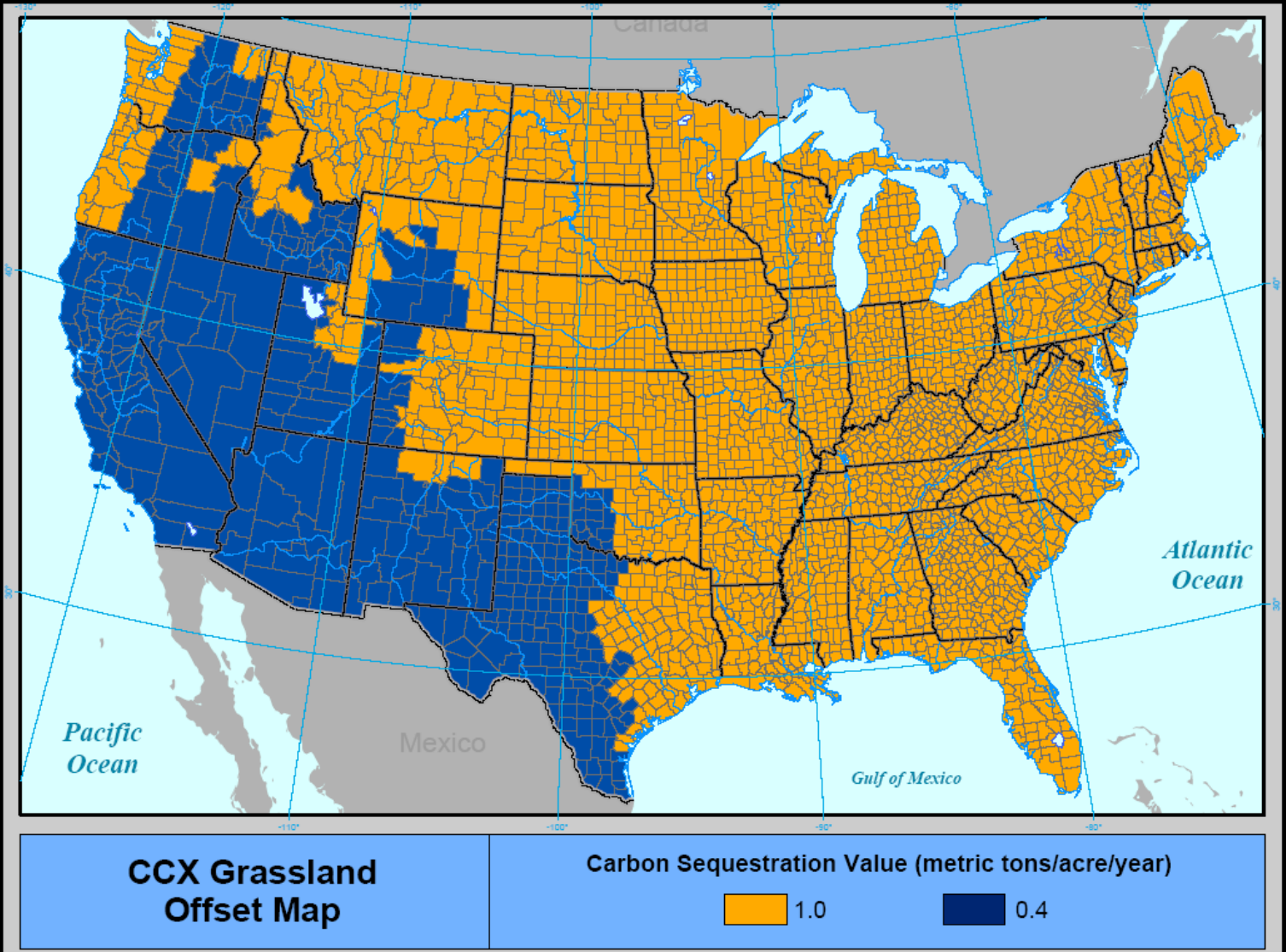


# CCX Offsets Rates for Continuous Conservation Tillage (mtons/acre/year, 5-year contracts)



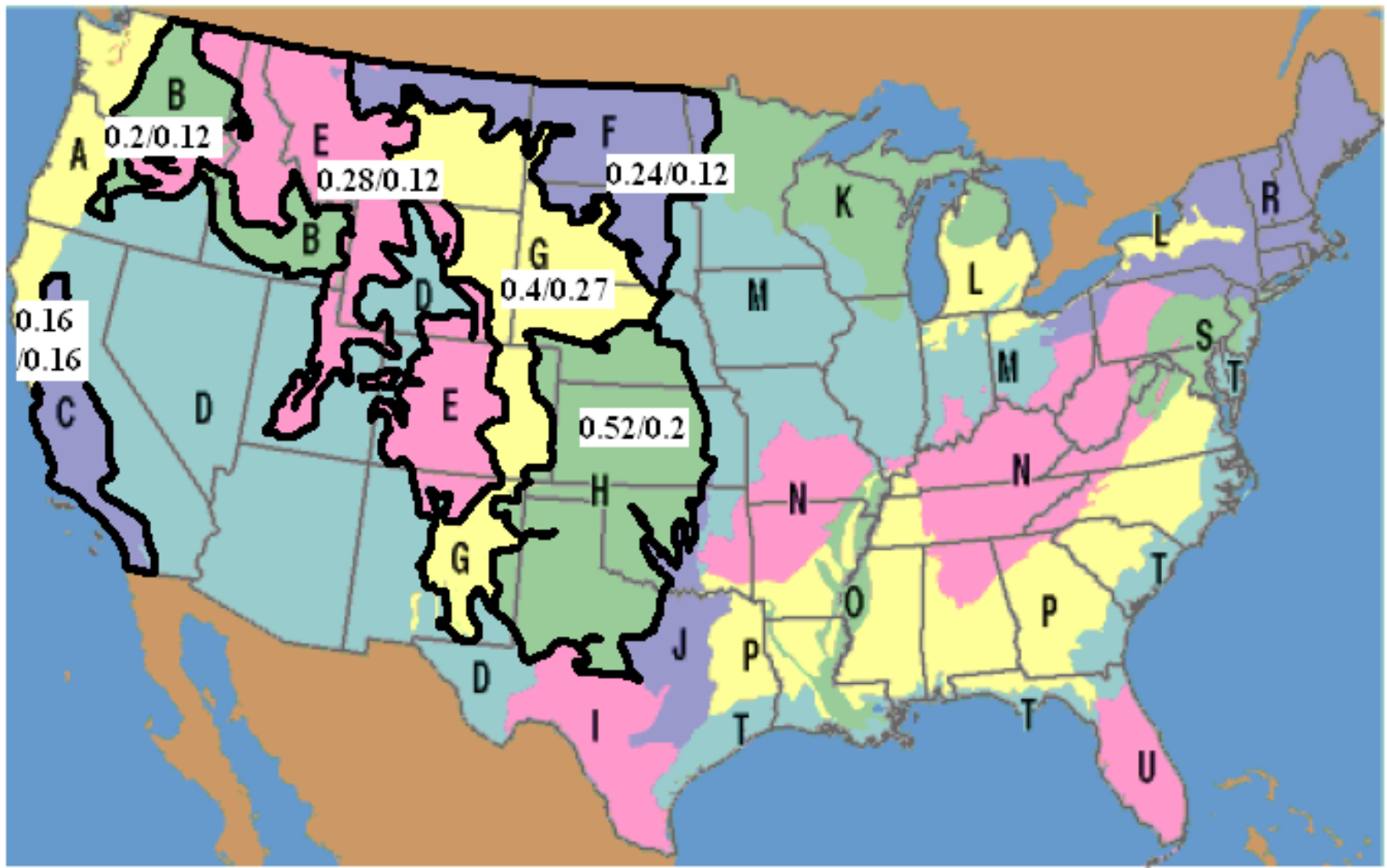


# CCX New Grassland Offsets Crediting Rates



# CCX Offsets Issuance Rates for Grazing land BMP

(mtons CO<sub>2</sub>/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	

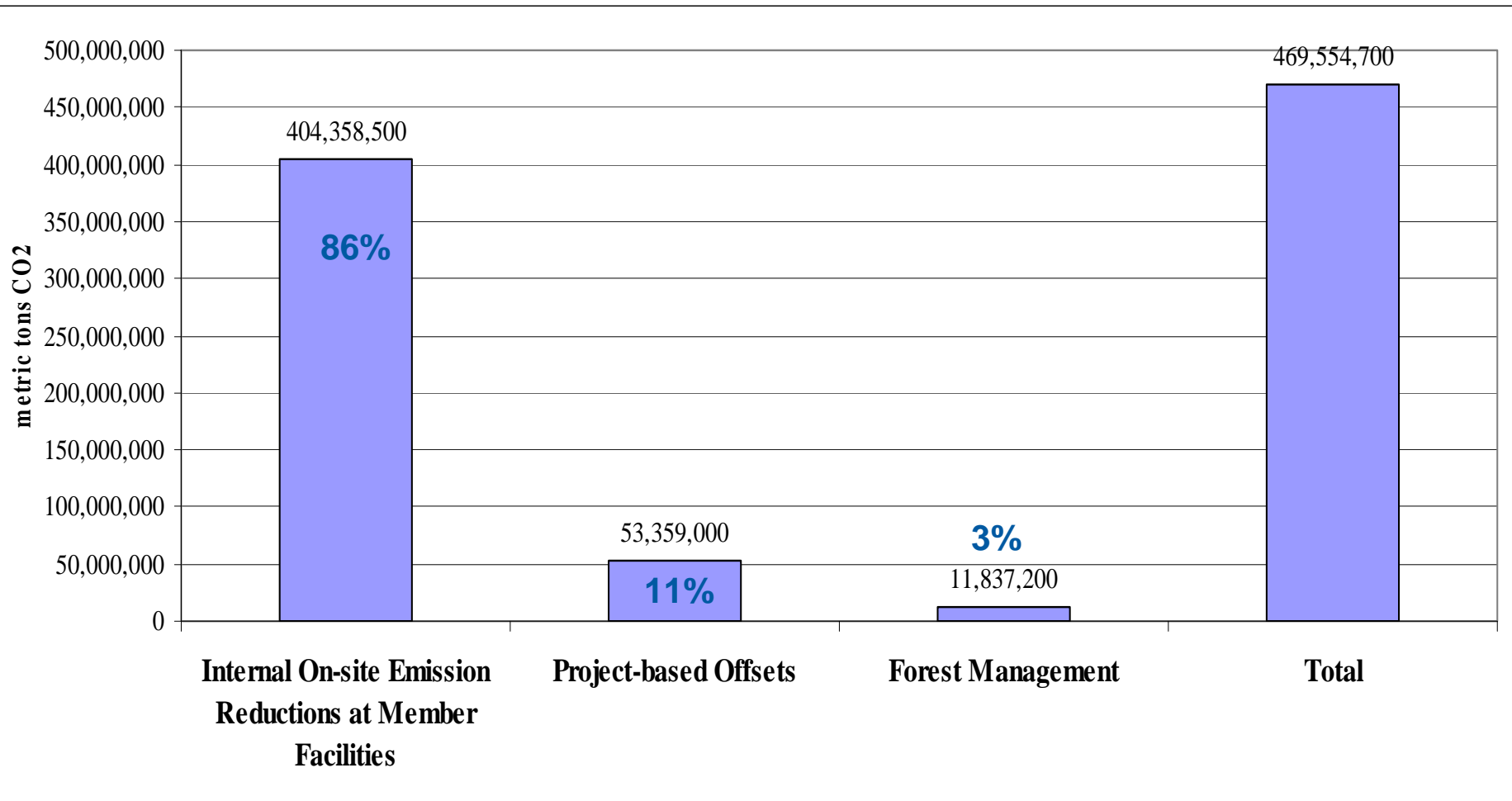


# U.S. Farmer Participation in CCX

- 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*



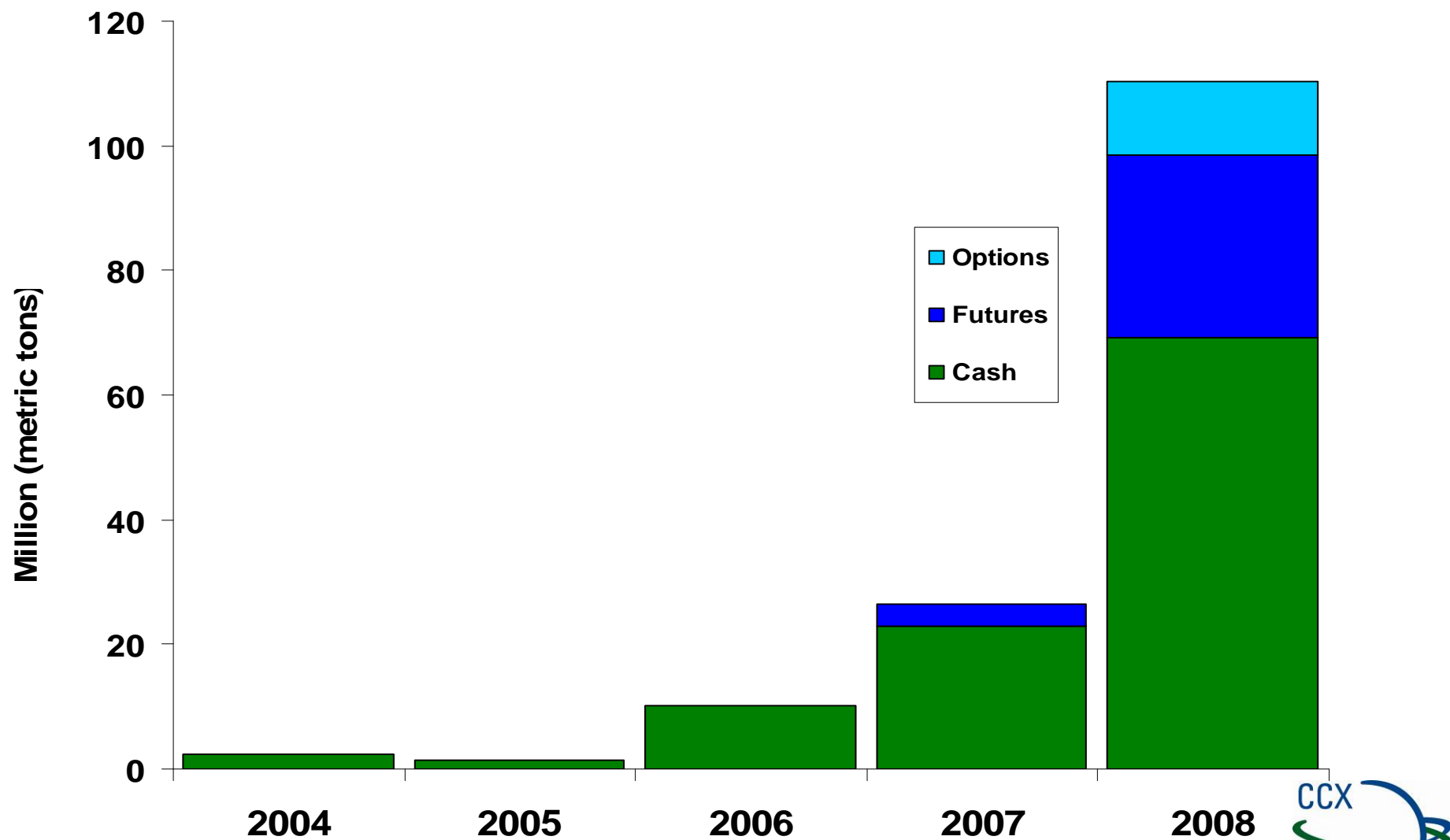
# Emission Reductions and Project-based Offsets in CCX Years 2003 through 2007\* (metric tons CO<sub>2</sub>)



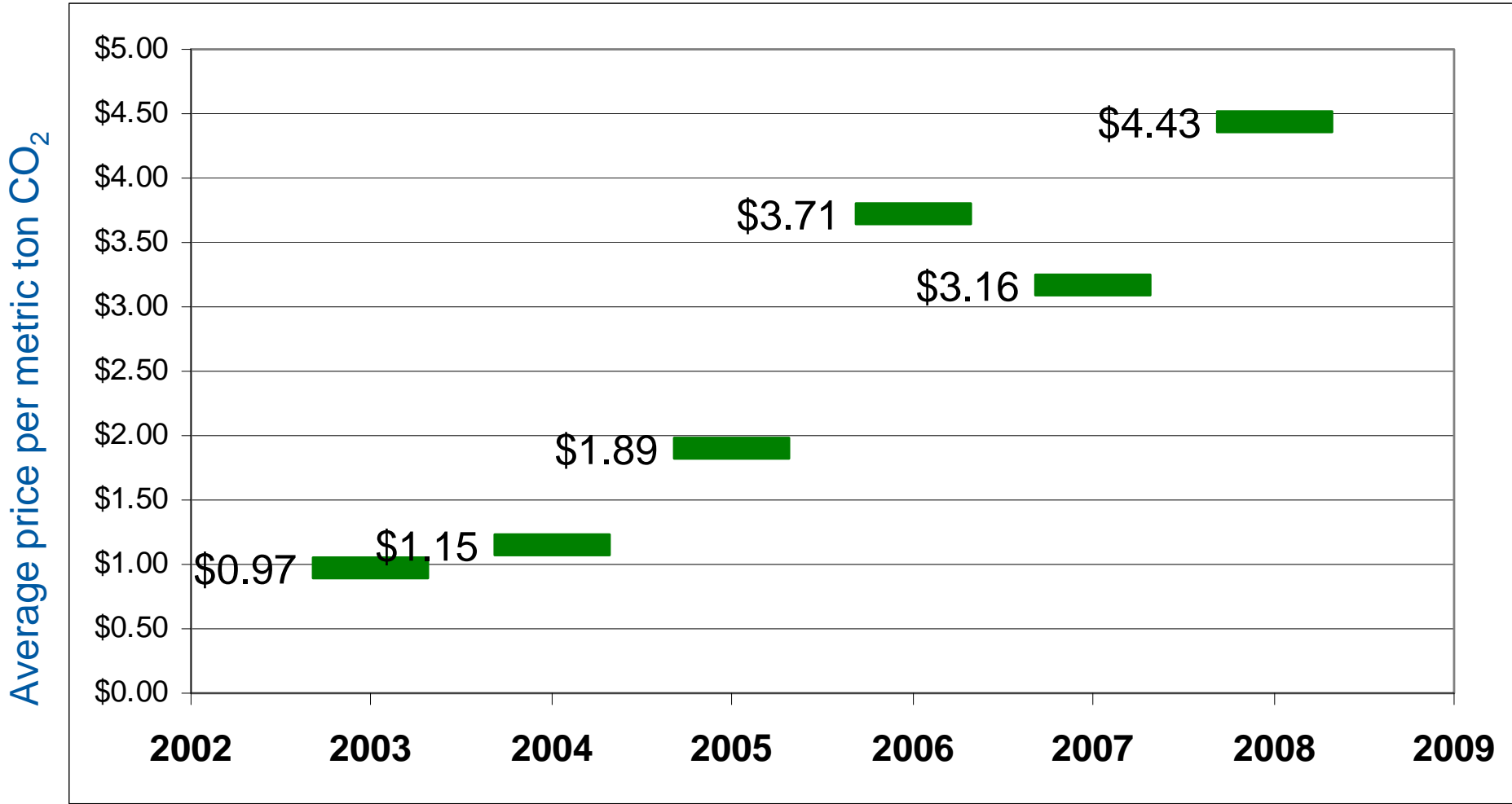
\*As of 2-20-09. A portion of new member emission reductions are currently undergoing verification.



# 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 CO<sub>2</sub> 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**

