

# Development of Environmental Markets for Food Waste Diversion

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# Environmental Markets

- Market-based solutions for environmental challenges
  - Quota based permits, offset credits, etc.
  - Voluntary or Compliance driven
- Different policy approach from 'command-and-control regulation'
  - Limits, bans, subsidies...



# Established Environmental Markets

- SO<sub>2</sub> and NO<sub>x</sub> ('acid rain')
  - US Clean Air Act (1990)
- Greenhouse Gas
  - UNFCCC (1994)
  - US States (RGGI, WCI, CA)
  - Voluntary markets (CCX, VCS, CAR)
- Renewable Energy ('RECs')
  - US States (Renewable Portfolio Standards)
  - Voluntary Green-e



# Established Environmental Markets

- Nutrient Trading
  - Pennsylvania (Nutrient TDML in Chesapeake Bay Watershed)
- Wetlands Mitigation
  - US Clean Water Act, Section 404
- Fisheries Management
  - Individual Fishing Quota (IFQ) Programs
- Biodiversity Markets
  - Conservation banking, habitat credit trading...



# Drivers for Organics Diversion

- Greenhouse gas (carbon credits)
  - Methane avoidance
  - N-fertilizer substitution
  - Soil carbon sequestration
- Renewable energy
  - Energy extraction (AD, gasification...)
- Water quality (nutrients)
- Wetlands

# Soil Carbon Sequestration

- For agricultural tillage practices (CCX, CAR?)
- Compost (CAR?)



# N-fertilizer substitution? (almost...)

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## AMS-III.A.: Offsetting of synthetic nitrogen fertilizers by inoculant application in legumes-grass rotations on acidic soils on existing cropland --- Version 2.0

Submit comments for improvement of this methodology ([please login](#))

UNFCCC Google Search

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Rules and Reference

Project Cycle Search

Prior Consideration

**Methodologies**

Validation

Deviation Requests

Issuance of CERs

CDM Registry

Stakeholder Interaction

Issues Quickfinder:

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Title	<a href="#">Offsetting of synthetic nitrogen fertilizers by inoculant application in legumes-grass rotations on acidic soils on existing cropland</a> (127 KB) <a href="#">Word version</a> (166 KB) <a href="#">View AMS-III.A. summary in the CDM Methodology Booklet</a>  Tool referenced in this methodology: <a href="#">Combined tool to identify the baseline scenario and demonstrate additionality</a> (341 KB)
Version number	2.0
Scale	Small scale
Type	III
Status	Active
Validity	Valid from 31 Jul 09 onwards
Sectoral scope(s)	15

**Previous Versions**

# Methane Avoidance Protocols

- UN Clean Development Mechanism
- Chicago Climate Exchange
- Alberta Offset Scheme
- Climate Action Reserve



Government of Alberta ■



# CDM Registered Composting Projects

- Clean Development Mechanism
- >45 Projects

- Brazil
- Guatemala
- India
- Indonesia
- Malaysia
- Philippines



- ~1.5 million credits
- **\$US 22 million value**

# CCX Registered Composting Projects

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PUBLIC REPORTS

## CCX Offset Project Public Registry Homepage



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Project ID	CCX Member	Project Name	Project Type	State/Province	Country	View
1515	Environmental Credit Corp.	Usimart Biomass Energy Project (Methane Avoidance)	Organic Waste Disposal Methane Offset	Mato Grosso	Brazil	<a href="#">View</a>
1882	Carbonyatra	Methane capture in anaerobic wastewater treatment plant for use as biogas and replacement of furnace oil in boilers for steam ge	Organic Waste Disposal Methane Offset	Gujarat	India	<a href="#">View</a>
1680	Environmental Credit Corp.	Alessio Madeiras Biomass Project (Methane Avoidance)	Organic Waste Disposal Methane Offset	Mato Grosso	Brazil	<a href="#">View</a>
1809	Environmental Carbon Credit Pool LLC	Waste Options Nantucket Composting Project	Organic Waste Disposal Methane Offset	MA	United States	<a href="#">View</a>
1518	Environmental Credit Corp.	Serraria Egidio Biomass Methane Avoidance Project	Organic Waste Disposal Methane Offset	Mato Grosso	Brazil	<a href="#">View</a>

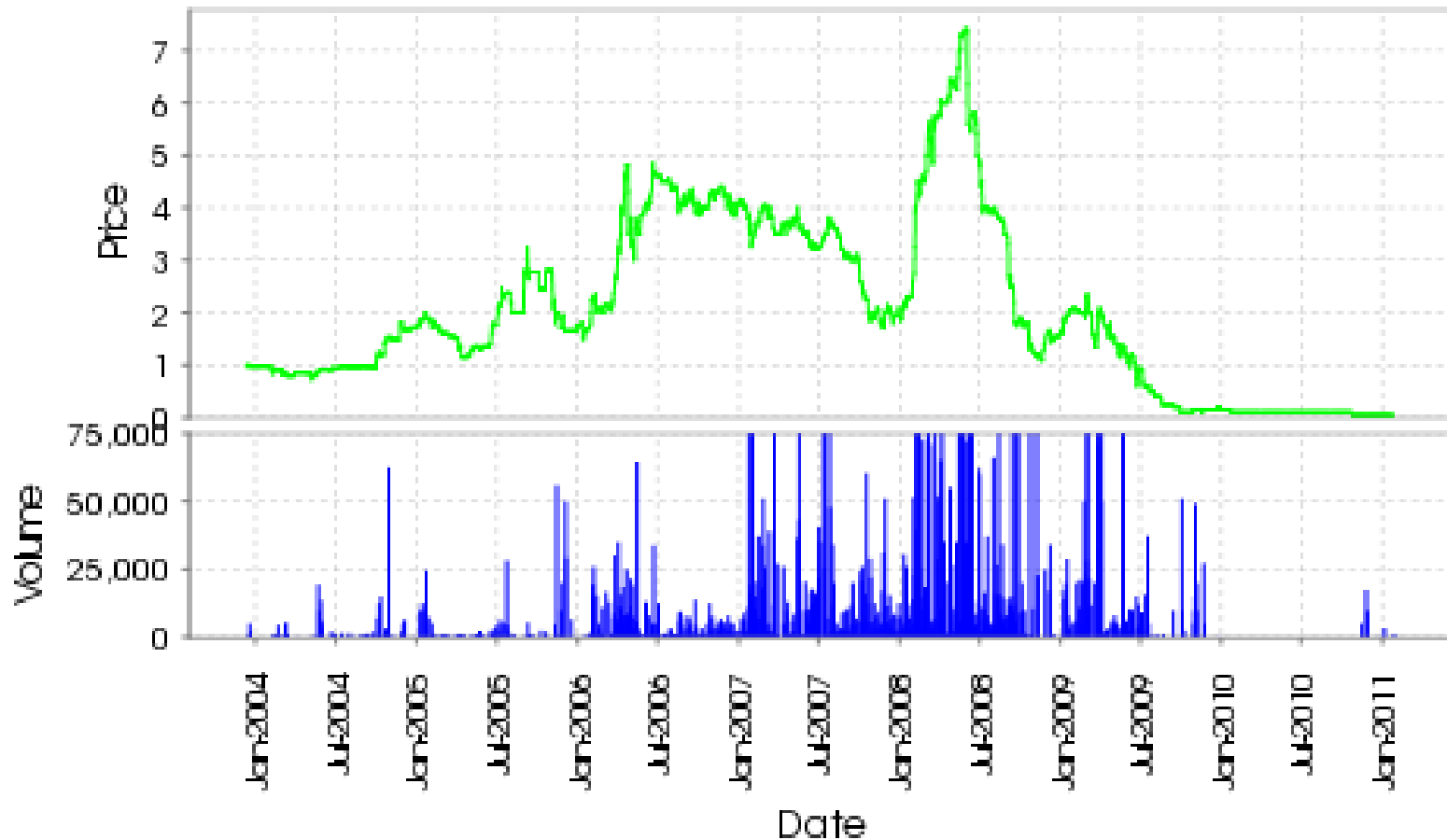


June, 2009

Waste Options Nantucket, MA

# Chicago Climate Exchange

## CCX Carbon Financial Instrument (CFI) Contracts Daily Report



Price and volume reported in metric tons CO<sub>2</sub>

# CAR Listed AD Projects



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## Projects



Project ID ▲▼	Project Developer ▲▼	Project Name ▲▼	Verification Body ▲▼	Project Type ▲▼	Status ▲▼	Project Site Location ▲▼	Project Site State ▲▼	Project Site Country ▲▼	Additional Certification (s) ▲▼	Documents ▲▼
CAR528	Element Markets, LLC	Tejas Industries Biogas		Organic Waste Digestion	Listed	Hereford	TEXAS	US		<a href="#">View</a>
CAR578	Grey K Trading Limited	Cottonwood Dairy Organic Waste Digestion Project	First Environment, Inc.	Organic Waste Digestion	Listed	Atwater, Merced County,	CALIFORNIA	US		<a href="#">View</a>
CAR584	Milbank Community Foundation	Midwest Dairy Institute		Organic Waste Digestion	Listed	Grant County South Dakota near Milbank	SOUTH DAKOTA	US		<a href="#">View</a>

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# CAR Listed Composting Projects



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## Projects



Project ID	Project Developer	Project Name	Verification Body	Project Type	Status	Project Site Location	Project Site State	Project Site Country	Additional Certification (s)	Documents	Project Website
CAR801	Zanker Road Resource Management, Limited	Z-Best Food Waste Composting		Organic Waste Composting	Listed	Gilroy	CALIFORNIA	US		<a href="#">View</a>	<a href="http://www.zankerrecycling.com">www.zankerrecycling.com</a>

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The Reserve - Powered by APX Technology

# California

- AB 32
  - Legislative authority
- Air Resources Board (ARB)
  - Regulator
  - Creates 'compliance market'
- Climate Action Reserve (CAR)
  - Offsets framework, protocols
  - CAR offsets may be eligible for ARB compliance, depending on project type

Deadline: June 30, 2011

