

Manure Storage Covers That Pay!

Part 1: Carbon Markets, 2009



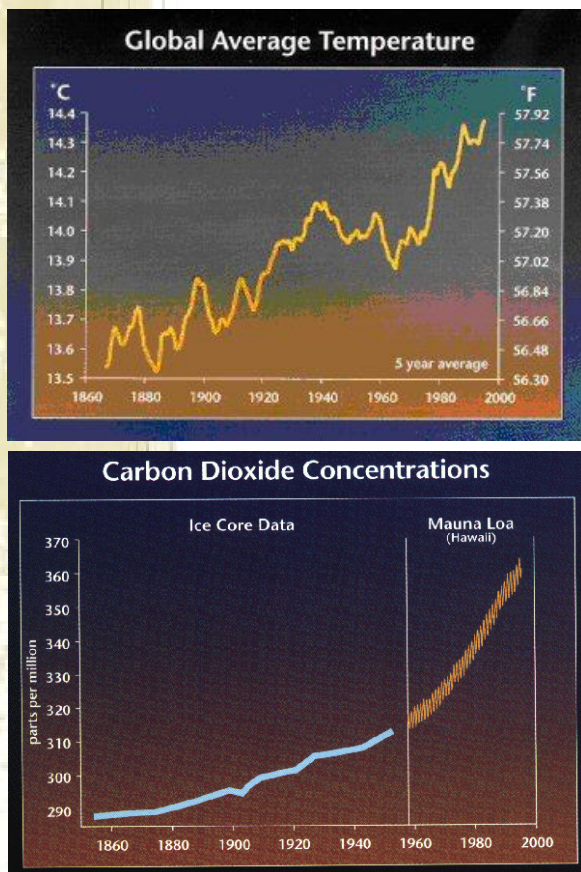
October 2009

Jim Jensen,
VP Business Development
Environmental Credit Corp

www.envcc.com

Global Climate Change: It's a New World

SCIENCE COVERAGE



NEWS COVERAGE



Global Warming Debate is Real



Cap and Trade - Market-Based Solution

“Cap and Trade” Systems Solve Big Problems

The CAP: Limits the total amount of gas emissions, typically affecting largest emitters: energy, manufacturing, and transportation sectors.

TRADING: Regulated companies trade surplus allowances; nonregulated companies trade offsets, using the free market to find the most cost effective methods.

REAL WORLD PROOF: When was the last time you worried about acid rain?

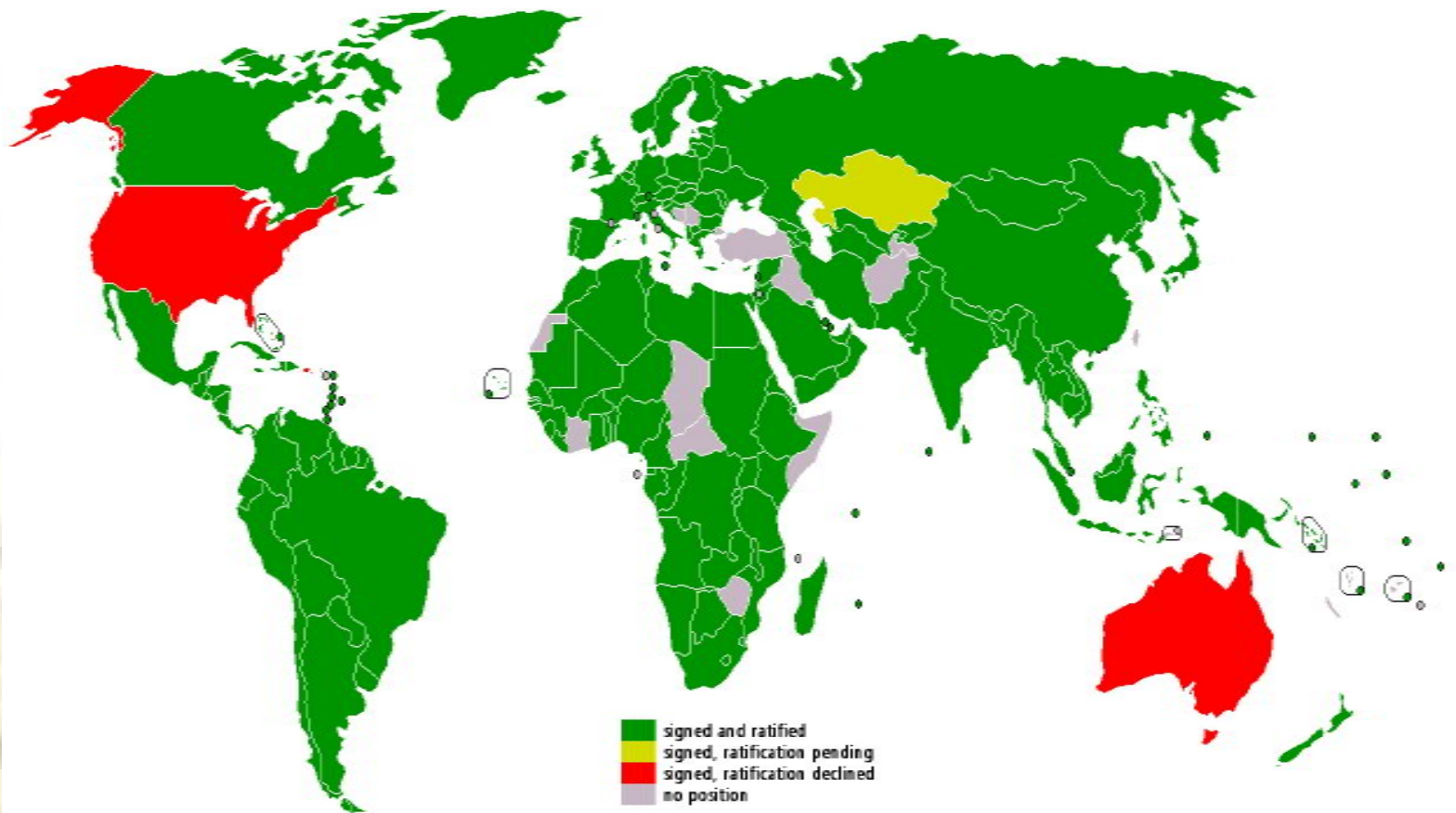
“Using market forces to efficiently and cost-effectively reach emission reduction goals makes sense for the environment and our economy.”

What are Carbon Credits?

- Documented, verified reductions of greenhouse gas emissions can become credits.
- Also increases in carbon sequestration.
- Additional — Not regulated; More than “business as usual.”
- Carbon Dioxide is the measure:
1 metric ton of CO₂ = 1 carbon credit
- Global Warming Potential is relative:
Methane – 23 times greater
Nitrous Oxide – 300 times greater
- The process of creating credits can be complex and costly.



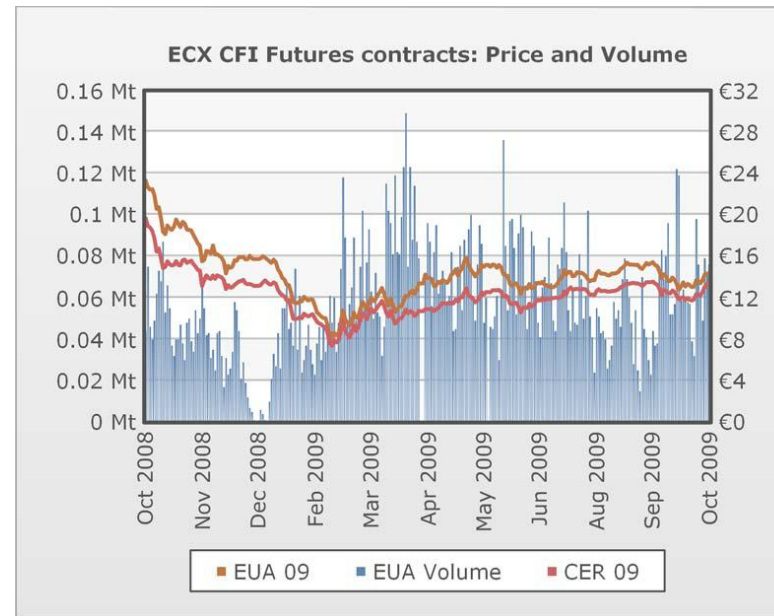
Kyoto Protocol-1997



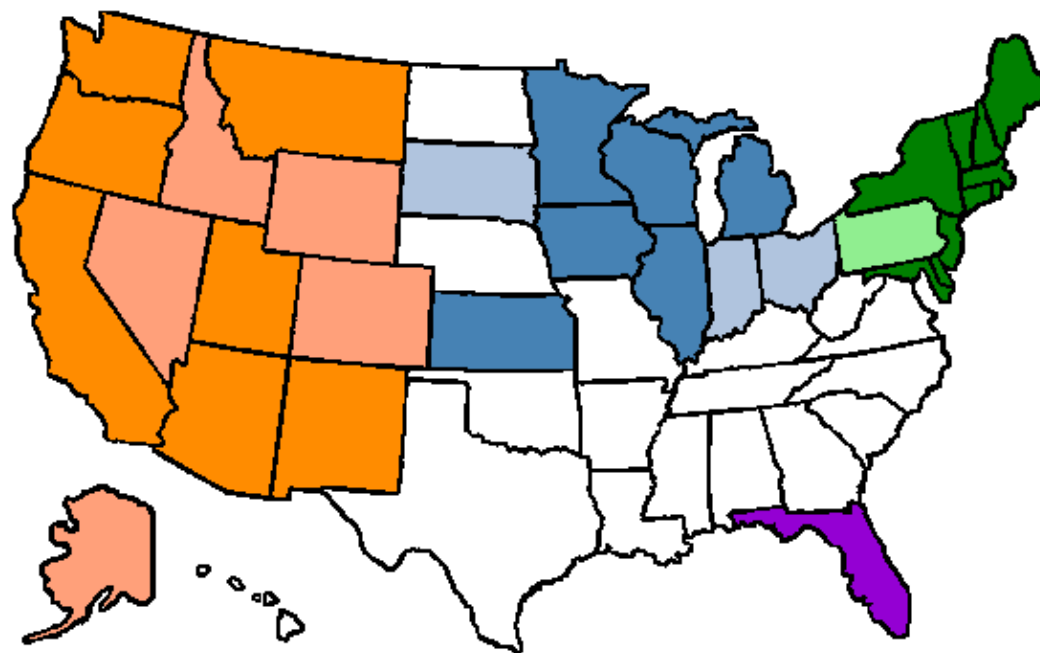
Carbon Market Summary - 2008

- Europe-Compliance
 - 4.8 billion metric tons CO₂e traded
 - \$126 billion market (Double from '07)
- U.S.-Voluntary
 - 123 million metric tons CO₂e traded (Up 87%)
 - \$705 million market
 - Avg price increased 20% to \$7.34/tCO₂e
 - 3,000+ end buyers
 - Future: \$1-2 trillion

Sources: World Bank, The Carbon Group



State and Regional Cap and Trade



- Regional Greenhouse Gas Initiative RGGI
- RGGI Observer
- Midwest GHG Reduction Accord
- MGGRA Observer
- Western Climate Initiative
- Western Climate Initiative Observer
- Individual State Cap-and-Trade Program

Source: www.pewclimate.org

Greenhouse gas regulations are coming

- April 2007—Supreme Court ruling—consider GHG pollution as part of Clean Air Act
- Aug 2009—EPA “endangerment finding” says GHGs harm human health and the environment; sets the stage for clean air regulation
- Sept 2009—EPA announces reporting requirements for large emitters

“I have no doubt EPA and Congress are trying to use the threat of Clean Air Act regulations to soften the industry on cap-and-trade.” Peter Glaser, Troutman Sanders LLP

US Science Orgs on Climate Change

American Assn for the Advancement
of Science

American Chemical Society

American Geophysical Union

American Inst of Biological Sciences

American Meteorological Society

American Society of Agronomy

American Society of Plant Biologists

American Statistical Assn

Assn of Ecosystem Research Cntrs

Botanical Society of America

Crop Science Society of America

Ecological Society of America

Natural Science Collections Alliance

Organization of Biological Field
Stations

Society for Industrial and Applied
Mathematics

Society of Systematic Biologists

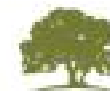
Soil Science Society of America

Univ Corp for Atmospheric Research

Observations throughout the world make it clear that climate change is occurring, and rigorous scientific research demonstrates that the greenhouse gases emitted by human activities are the primary driver.

These conclusions are based on multiple independent lines of evidence, and contrary assertions are inconsistent with an objective assessment of the vast body of peer-reviewed science.

Source: Oct 21, 2009 letter to US Senate



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Corporate support for cap and trade

- **U.S. Climate Action Partnership:** ConocoPhillips, Ford, GM, Johnson & Johnson, Pepsi, Shell, Siemens, Xerox, NRG Energy, DuPont, Duke Energy, GE, and more
- **Business for Innovative Climate and Energy Policy:** Nike, Starbucks, Levi Strauss, Sun Microsystems, Timberland; plus Aspen Skiing, Clif Bar, eBay, Gap, North Face, Seventh Generation, Symantic
- **Business Roundtable:** 160 CEOs of leading US companies
- **Others:** Hewlett Packard, Pacific Gas & Electric, United Technologies, Weyerhaeuser

Businesses endorse climate action

“The consequences of global warming for society and ecosystems are potentially serious and far-reaching” and “steps to address the risks of such warming are prudent now even while the science continues to evolve.” The Business Roundtable

“Companies need the legislative certainty to start making the substantial investments needed to jump-start a low carbon economy and create jobs.” John Rowe, CEO, Exelon

“Investment in new technologies and the infrastructure needed for a low-carbon economy are effective ways to generate the jobs and economic growth the U.S. needs to address the current economic crisis.” James Rogers, Duke Energy

Hunters, Anglers See Climate Changes



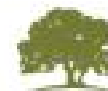
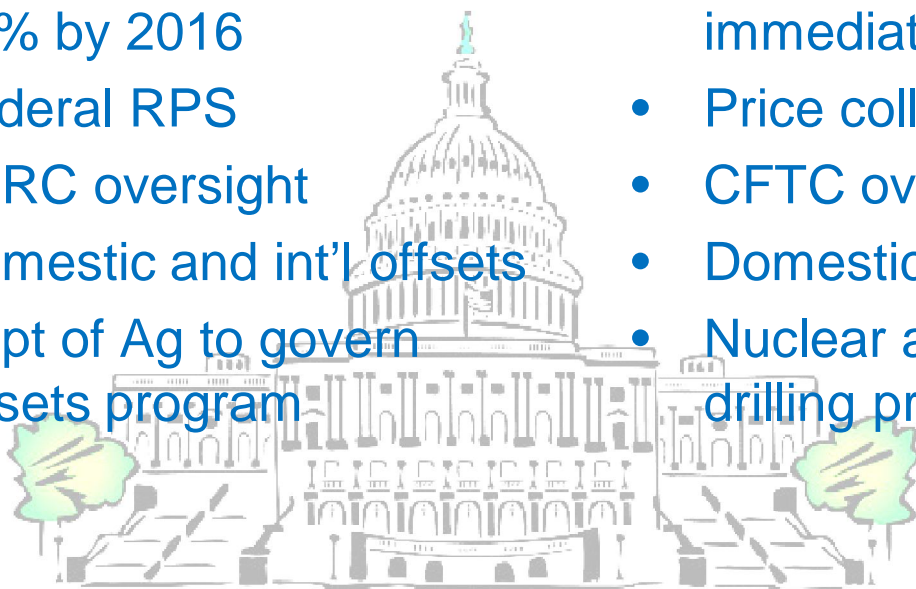
Poll for National Wildlife Federation, which counts more than 420,000 members across 42 states.

- Is global warming occurring? **66% agree.**
- Should the next Congress take action on global warming? **62% agree.**
- Agree or Disagree? “We have a moral responsibility to confront global warming to protect our children's future.” **73% agree.**

Nationwide poll, July 27-31, 2008 by American Viewpoint

Congressional Action - 2009

- House: American Clean Energy and Security Act (ACES) Waxman-Markey
- 17% GHG reduction-2020
- Phased entity coverage to 84% by 2016
- Federal RPS
- FERC oversight
- Domestic and int'l offsets
- Dept of Ag to govern offsets program
- Senate: Clean Energy Jobs and American Power Act (CEJAP) Kerry-Boxer
- 20% GHG reduction-2020
- 7500 entities covered immediately
- Price collar (\$11-\$28)
- CFTC oversight
- Domestic and int'l offsets
- Nuclear and off-shore drilling provisions



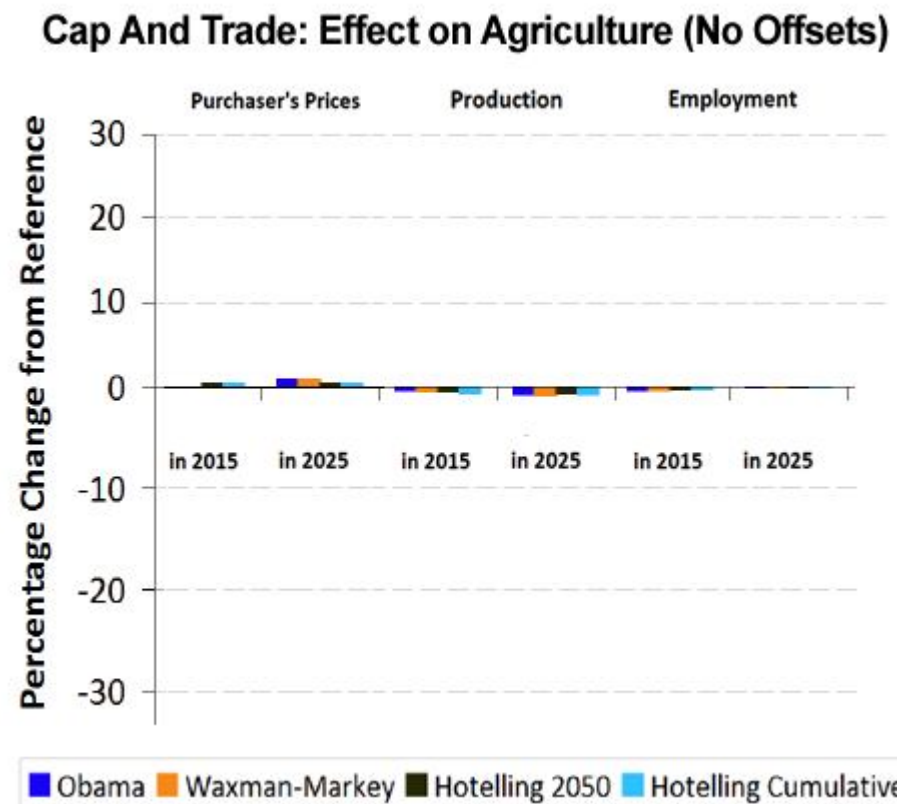
What's In It for Dairies?

- Higher energy and fertilizer prices
- Energy cost savings
- Support for production of renewable energy
- Grants and energy cost subsidies
- Opportunity to make carbon credits

“In the short term, the economic benefits to agriculture from cap and trade legislation will likely outweigh the costs. In the long term, **the economic benefits from offsets markets easily trump increased input costs from cap and trade legislation.**”—Scty Tom Vilsack



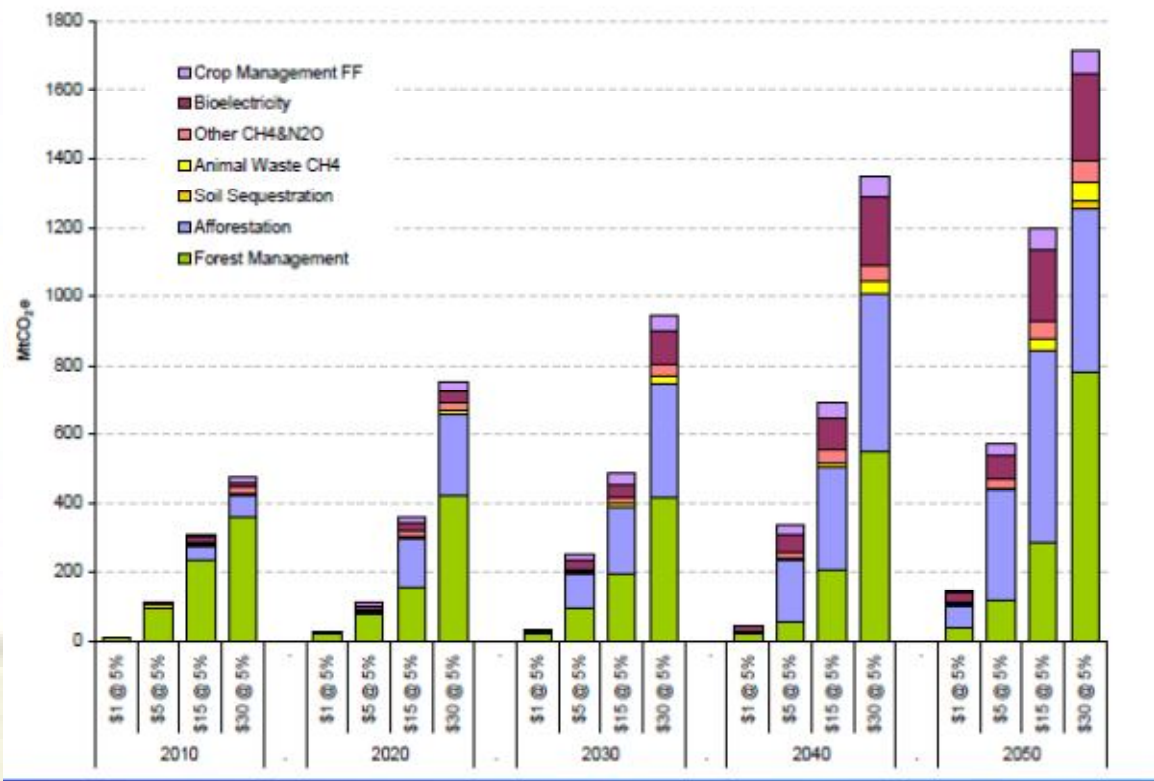
Brookings Institute Study



Worst Case Scenario:
No offsets, incentives for renewables or other cost controls.

The “Obama” and “Waxman-Markey” models do not include banking and borrowing of pollution allowances, unlike the actual Waxman-Markey legislation. The “hotelling” models include banking and borrowing, but no models include agricultural offsets.

Value of Ag Offsets in Future



Domestic offset market valued at \$2.7 to \$3.4 billion within 5 years

Source: EPA, 2009

National Farm Organizations

American Farm Bureau—NO

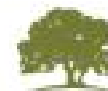
AFB started a “Don’t Cap Our Future” campaign.

National Farmer’s Union—YES

NFU “supports a national mandatory carbon emission cap and trade system to reduce non-farm greenhouse gas emissions.”

National Milk Producers Federation

“The dairy industry is poised to play an important role in the upcoming cap and trade legislation with a robust offset market.”



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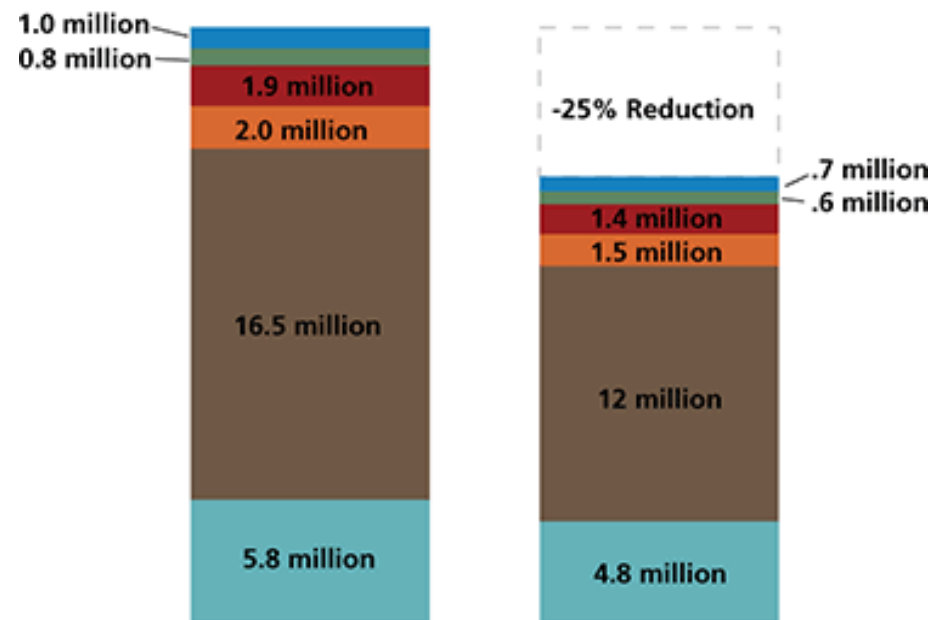
US Dairy Sustainability Goal




2020 Goals for GHG Reduction-Fluid Milk




Overall: 25% reduction = 28 million metric tons CO₂e

- Crop Production
- Milk Production
- Processing
- Packaging
- Transport/Distribution
- Retail

U.S. Dairy Roadmap to Reduce Greenhouse Gas Emissions and Increase Business Value



Crop Production	
Milk Production	
Processing	

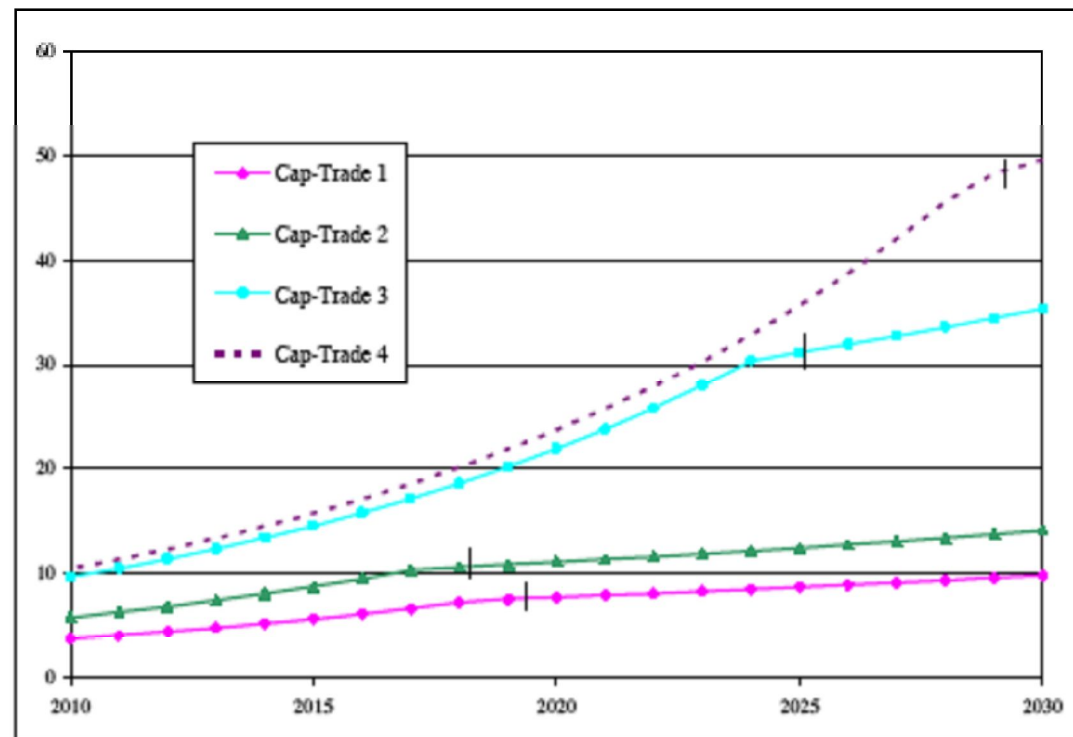
Packaging	
Transport/Distribution	
Retail	



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Price Forecasts for US Carbon Credits

Figure ES 2: Greenhouse Gas Permit Prices in Cap and Trade Cases, 2010-2030
(2004 Dollars per Metric Ton Carbon Dioxide Equivalent)



Source: National Energy Modeling System runs SALACAP.D012006a, SALACAP30.D012306a, SALACAP35.D012306a, and SALACAP40.D012006a.

Environmental Credit Corp.

**ECC creates environmental assets
from greenhouse gas reduction projects**

- A market leader for reliable, certified credits generated within diverse market sectors
- Works in many areas of the carbon market
- Takes on the risks for project development
- Uses a success-based delivery model

ECC Business Development Targets

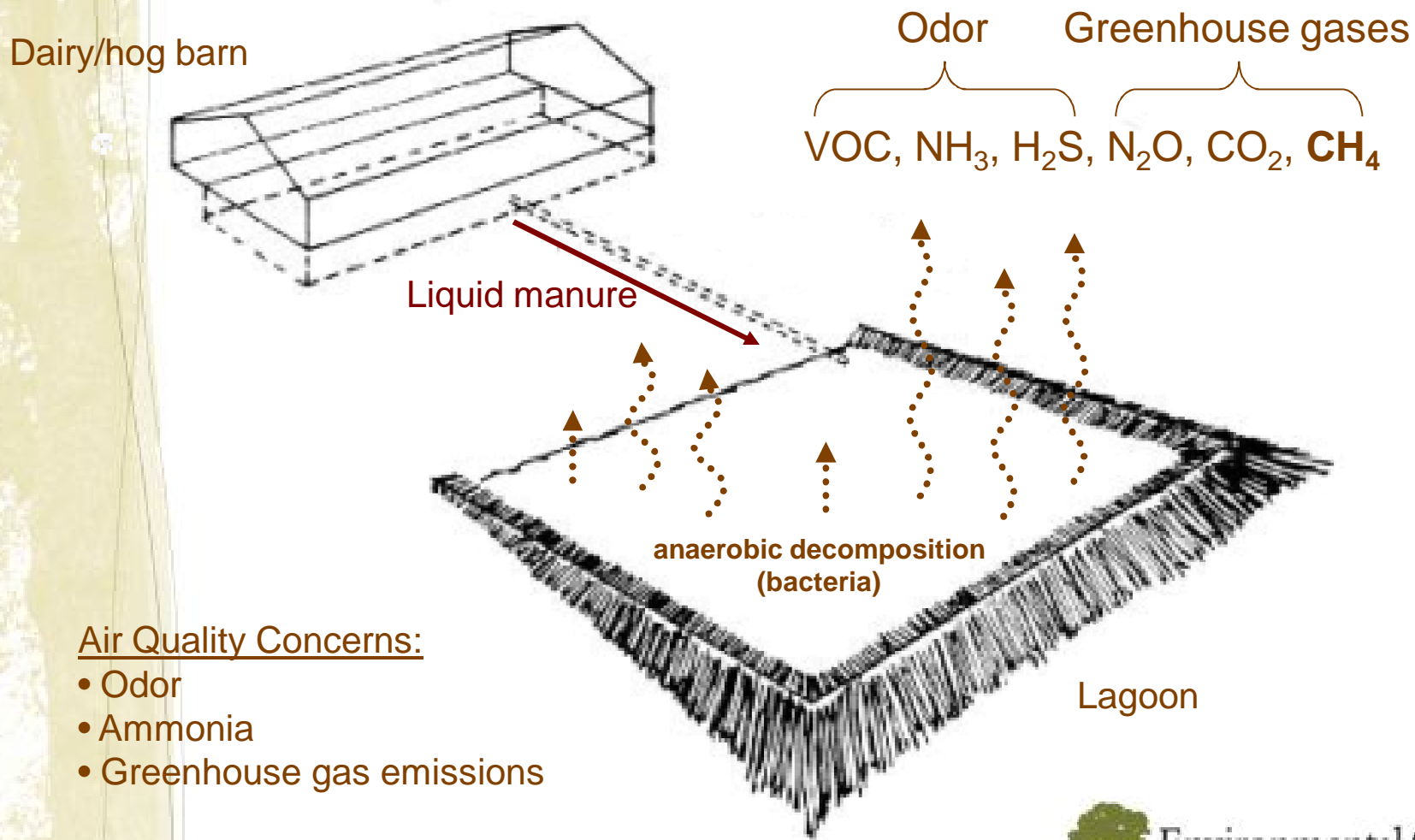
- Manure methane reductions – dairy, hog, feedlot
- Solid waste (landfill) and wastewater methane
- Coal mine methane reductions
- High density gas reclamation
- Energy from renewables
- Biofuel production and use
- School and institutional energy efficiency

ECC Works Closely with Dairy Industry

- More than 2 dozen livestock production farms under contract
 - Dairy and swine projects in 10 states
 - Represents more than 3 million credits over 10 year terms
- Accomplishments:
 - First carbon credits for US dairy
 - Largest annual award to a US dairy producer
 - First project financed by carbon credits alone
 - Largest share of US market for ag methane credits

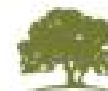


Problem: Open-Air Lagoons (*“baseline scenario”*)



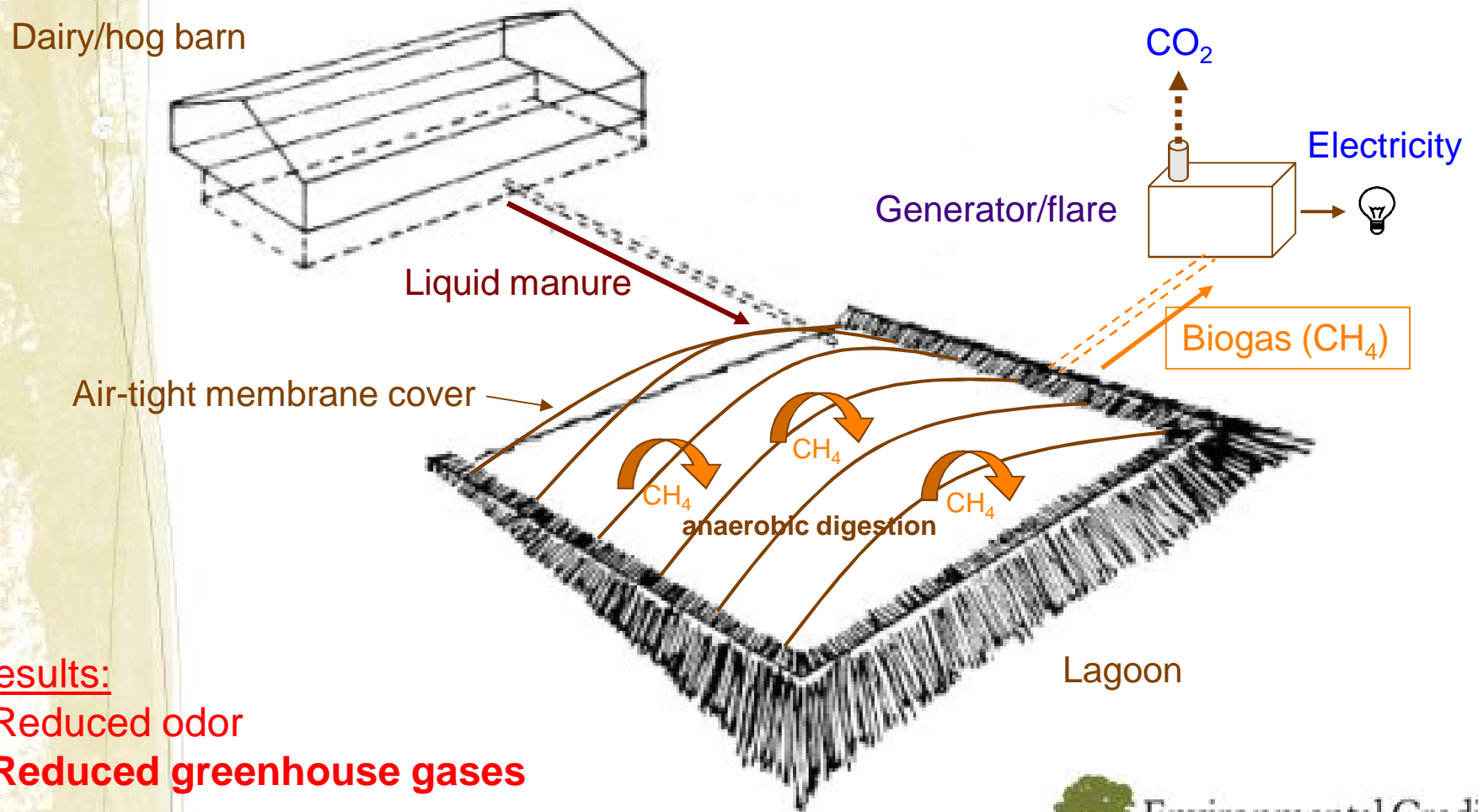
Air Quality Concerns:

- Odor
- Ammonia
- Greenhouse gas emissions



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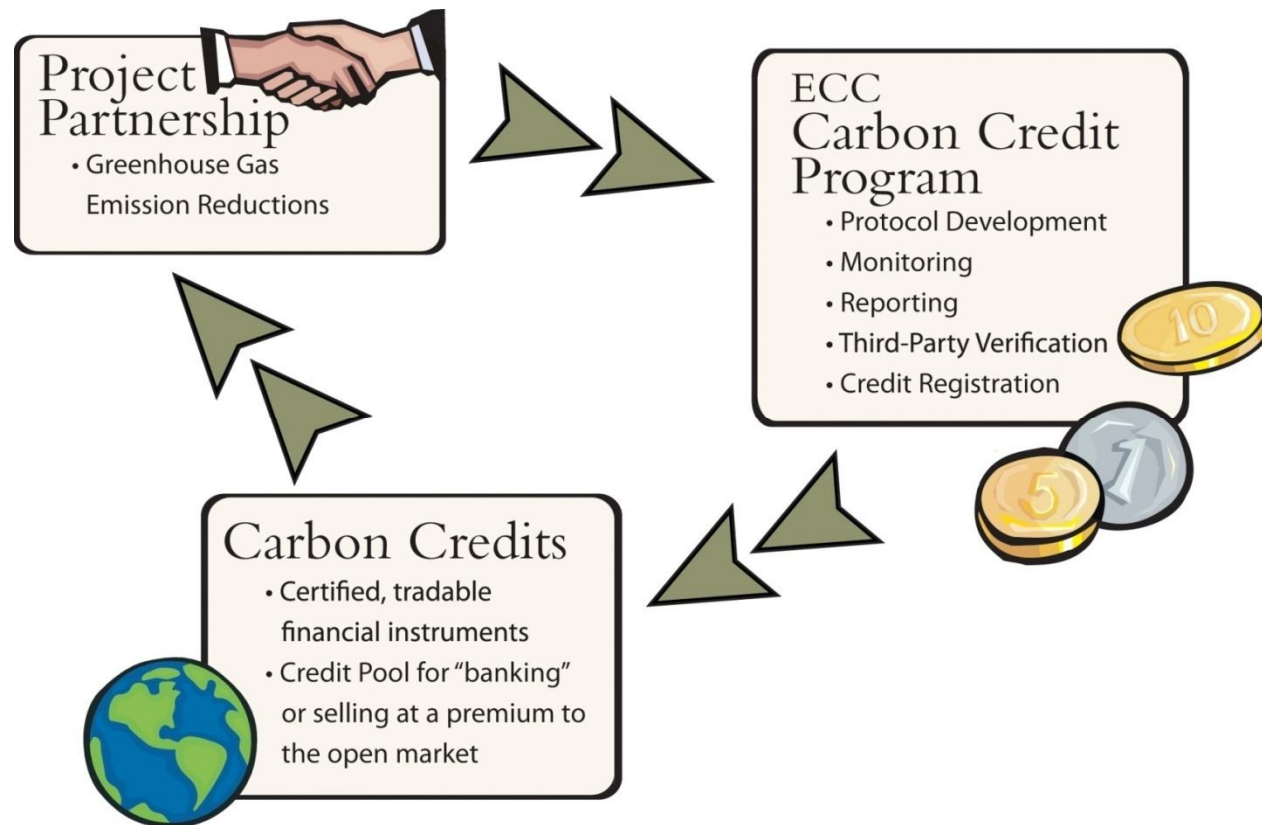
Solution: Covered Lagoons or Digesters



Results:

- Reduced odor
- **Reduced greenhouse gases**

How ECC Programs Work



Creating Carbon Offset Credits

- Project Developer

Greenhouse Gas
Emission Reductions

Achieved via
qualifying GHG
emission reduction
projects

- Offset Aggregator

- Offset Standard/Program

- Third-party Verifier

- Registry

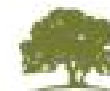
- Eligibility Assessment
- Protocol Development
- Monitoring
- Reporting
- Verification
- Registration

**Frameworks and
standards:**
Chicago Climate
Exchange, EPA,
state or UN (Kyoto)
Protocols, etc...

- Buyer

Carbon Offset Credits
(certified, tradable, \$\$)

*Trade, bank, or
sell* through CCX,
ECX, or direct



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Market Risks - Dairies

Carbon markets are complex, and becoming more so

- Eligibility
- Additionality
- Methane destruction systems
- Monitoring systems
- Data management
- Protocol standard choice
- Verification and expenses
- Buyers
- Transaction costs



ECC Approach to Partnerships

- Carbon credit focus (existing digester - landfill projects)
- Do more project development (e.g., lagoon cover projects)
- Optimize dollars per carbon credit
- Keep risk minimal
- Keep risk away from partners
- Long-term relationships
- Let carbon value float with market
- Share in the upside potential
- We benefit only from success; we send checks not bills

The ECC Team

- Project Development
- Engineering
- Finance
- Account Management
- Compliance
- Carbon Asset Management

It's Time to Act THANK YOU



"I think there is something, more important than believing: Action! The world is full of dreamers, there aren't enough who will move ahead and begin to take concrete steps to actualize their vision." — W. Clement Stone