

# Carbon Offsets Workshop



CLIMATE  
ACTION  
RESERVE

**May 10, 2011**

**AgSTAR National Conference**

**Boise, ID**

# Agenda



CLIMATE  
ACTION  
RESERVE

- 2:00** Introduction to the Climate Action Reserve and the Livestock Project Protocol  
*Max DuBuisson, Climate Action Reserve*
- 3:10** Project Monitoring & Verification  
*Nick Facciola, LRQA Americas Sustainability, Inc.*
- 3:40** Break
- 3:50** Project Development & Case Study  
*Peter Freed, Terra Pass*
- 4:25** Project Development & Case Study  
*Lauren Wittig, Camco International*
- 5:00** Adjourn





CLIMATE  
ACTION  
RESERVE

Introduction

# CLIMATE ACTION RESERVE





CLIMATE  
ACTION  
RESERVE

# Background

- North American carbon offsets program
- Chartered by CA state legislation in 2001
  - Mission is to encourage early voluntary actions to reduce emissions and to have such emissions reductions recognized
    - Initially focused on emission reporting and reductions by member organizations (*as the California Climate Action Registry*)
    - Now on emission reduction projects generating offsets
- Balances business, government, and environmental interests





CLIMATE  
ACTION  
RESERVE

# What We Do

## 1. Develop High Quality Standards

- Convene stakeholders and lead development of standardized protocols for carbon offset projects

## 2. Manage Independent Third Party Verification

- Training and oversight of independent verification bodies

## 3. Operate a Transparent Registry System

- Maintain registry of approved projects
- Issue and track serialized credits generated by projects (Climate Reserve Tonnes = CRT)





CLIMATE  
ACTION  
RESERVE

# Separation of Roles

- Is not affiliated with the State of California
- Reserve does not fund or develop projects
- Does not take ownership of offsets
- Is not an exchange
- Is a 501(c)3 not-for-profit organization
- Independent third-party verification
  - Consistent with international standards
  - Accreditation done by ANSI
  - Assiduous oversight of verifiers



# Transparency



CLIMATE  
ACTION  
RESERVE

- Unparalleled transparency makes the Reserve unique
- Public reports include:
  - All protocols and associated documents
  - List of all account-holders
  - List of all projects and all project documents
  - List of all issued CRTs for every project
  - All retired CRTs





CLIMATE  
ACTION  
RESERVE

# Reserve Project Types

- Forestry
  - Improved forest management
  - Avoided conversion
  - Reforestation
- Urban forestry
- Livestock methane capture (US & Mexico)
- Ozone Depleting Substances (US & Article 5 sources)
- Landfill gas capture (US & Mexico)
- Organic waste digestion
- Coal mine methane
- Nitric Acid Production
- Organic Waste Composting

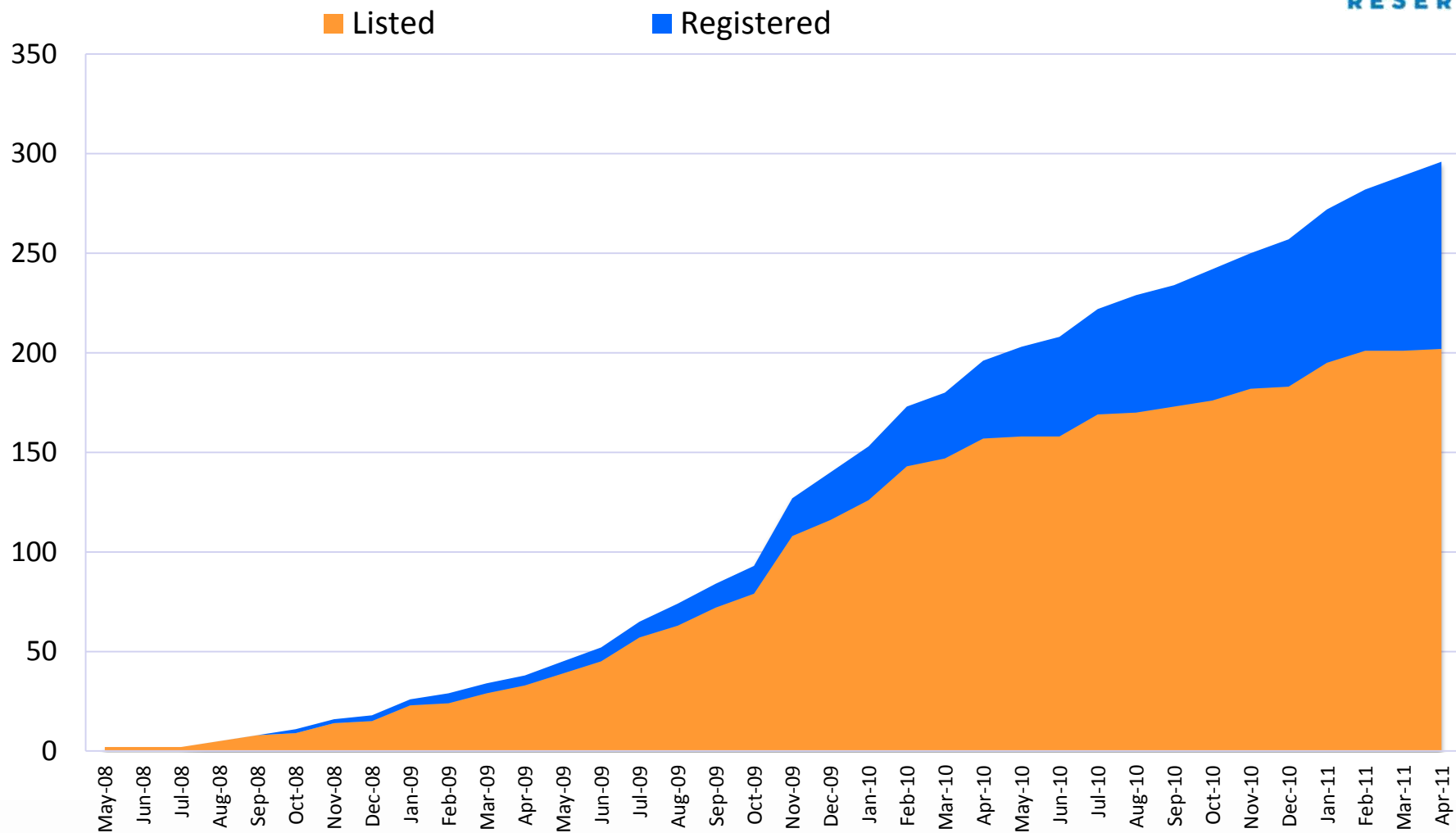




# Offset projects in the Reserve



CLIMATE  
ACTION  
RESERVE





CLIMATE  
ACTION  
RESERVE

# Reserve stats

CRTs registered **12.5 million**

*CRTs retired* 1.9 million

Account holders **369**

Projects submitted **407**

*New* 110

*Listed* 202

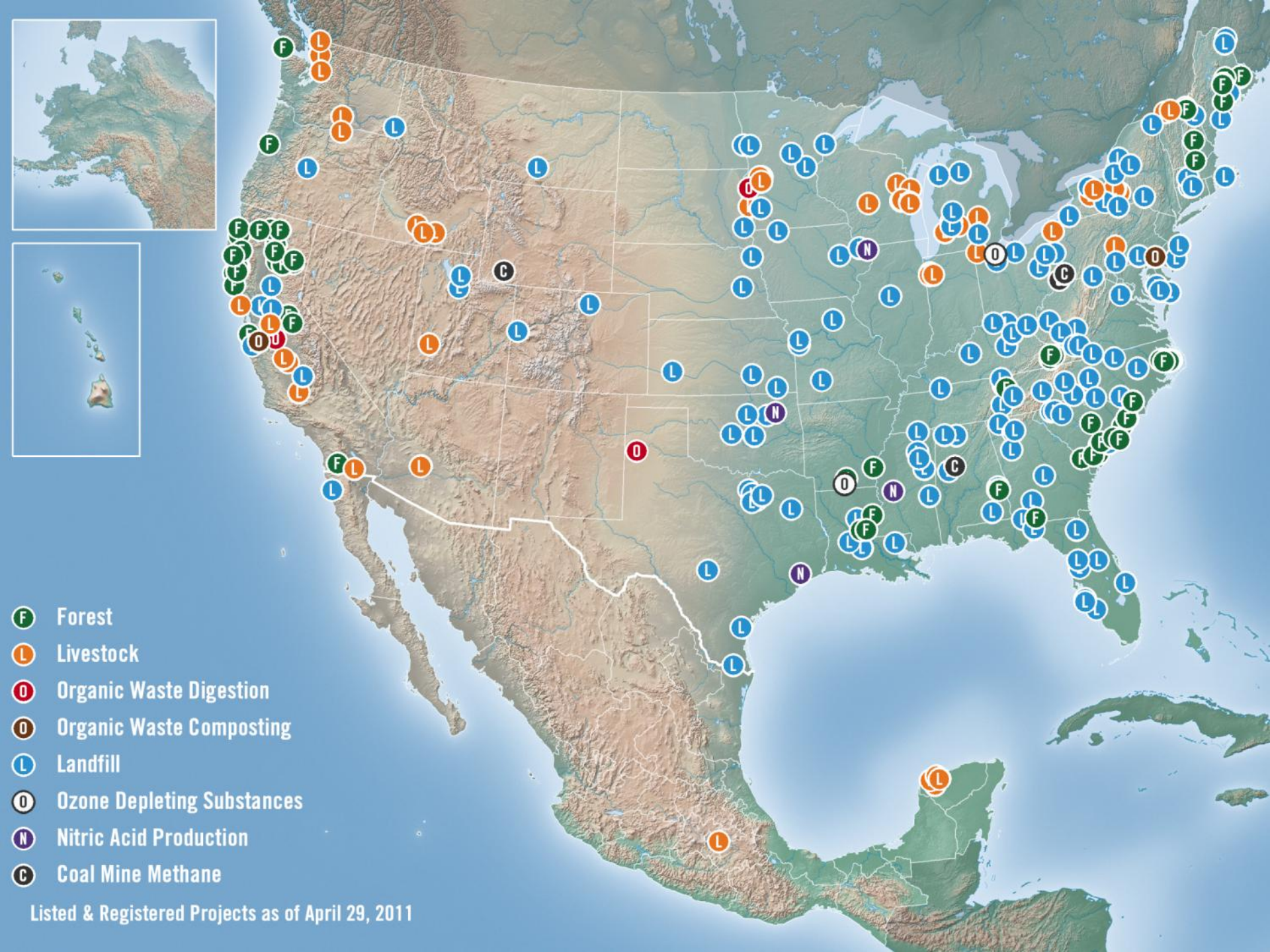
*Registered* 95

U.S. States with  
Projects **45**

Recent prices ~\$7-8 per CRT for Livestock

~\$2-4per CRT for other protocols





- F** Forest
- L** Livestock
- O** Organic Waste Digestion
- D** Organic Waste Composting
- L** Landfill
- O** Ozone Depleting Substances
- N** Nitric Acid Production
- C** Coal Mine Methane

Listed & Registered Projects as of April 29, 2011



CLIMATE  
ACTION  
RESERVE

California Assembly Bill 32

# CAP-AND-TRADE IN CA





CLIMATE  
ACTION  
RESERVE

# Cap-and-Trade in California

- Assembly Bill 32 passed in 2006, cap-and-trade regulation adopted in Dec 2010
- Program begins Jan 1, 2012 and runs through 2020
  - Divided into three compliance periods of 3 years each
  - Narrow scope for 1<sup>st</sup> period, broad scope beginning Jan 1, 2015
- Must have compliance instruments equal to your emissions for each year
  - **Allowances**: most allocated at the beginning, but auctioned in future years; issuance reduced annually
  - **Offsets**: can be used in place of allowances on a limited basis



# Who's covered?



CLIMATE  
ACTION  
RESERVE

NARROW SCOPE	BROAD SCOPE
Electricity Generation	Narrow Scope Sources plus...
Imported Electricity	<i>Fuel Suppliers:</i>
Cement Plants	Gasoline
Hydrogen Plants	Distillate
Cogeneration Facilities	Propane
Refineries	Natural Gas
Other Industrial (>25k MT CO <sub>2</sub> e)	Ethanol
General Stationary Combustion (>25k MT CO <sub>2</sub> e)	



# California Carbon Market



CLIMATE  
ACTION  
RESERVE

Compliance Period	Year	Allowance Budget (mt CO <sub>2</sub> e)	Potential Offset Demand
<b>First</b> (narrow scope)	2012	165,800,000	39,064,000
	2013	162,800,000	
	2014	159,700,000	
<b>Second</b> (broad scope)	2015	394,500,000	91,784,000
	2016	382,400,000	
	2017	370,400,000	
<b>Third</b>	2018	358,300,000	83,104,000
	2019	346,300,000	
	2020	334,200,000	





# Carbon Offsets

- The premise:
  - Reductions in GHG emissions are less costly for some emitters than others, so it is economically efficient for one emitter to pay another for a reduction in GHG emissions
- Three types of markets:
  1. Voluntary – individuals and organizations purchasing carbon credits outside of any regulatory mandate
  2. Compliance – credits that are transacted with the goal of satisfying some regulatory mandate, such as AB32
  3. “Pre-compliance” – speculation that precedes acceptance in a compliance market







CLIMATE  
ACTION  
RESERVE

# Offsets for Compliance

- Up to 8% of an entity's compliance obligation
  - Example: If your emissions are 500,000 mtCO<sub>2</sub>e, then you can apply up to 40,000 offsets towards that period
- Two types of offsets, functionally equivalent:
  - Early-Action Offsets
    - Start dates no later than Jan 1, 2012
    - Vintages accepted from 2005 through 2014
  - ARB Compliance Offsets
    - Start dates no earlier than Jan 1, 2007





CLIMATE  
ACTION  
RESERVE

# Offsets for Compliance

- ARB will assess and approve third-party protocols and accredit third-party registries to issue offsets
  - Four Climate Action Reserve protocols have been adopted, more will be considered later
  - The process is not yet determined for becoming an accredited registry, but the Reserve will apply as soon as is possible
- The Reserve program will be coordinated with the ARB program to ensure a steady supply of offsets for the CA market
- ARB will have its own guidelines for verification, and will accredit independent verification bodies





CLIMATE  
ACTION  
RESERVE

# Offsets Contracts

- CA contracts already traded, but activity has been limited due to market concerns
  - Uncertainty due to Superior Court ruling
  - ARB credit invalidation
- Under ARB, holders of credits responsible for replacing them if they are invalidated
  - Buffer pool for all offsets or insurance products?
- Reserve requires explicit title to reductions and assigns responsibility to project developer and/or verification body





CLIMATE  
ACTION  
RESERVE

# Regulatory Next Steps

- There are still many unknowns that are being finalized
  - What is the process for project developers?
  - What is the process for covered entities?
  - Allowance allocation details
- ARB staff are continuing to update the regulation this year, final changes to be adopted October 2011
- 15-day public notices, as well as other public workshops, expected through in the summer
- Delays are inevitable, especially with the current court battles





CLIMATE  
ACTION  
RESERVE

Livestock Project Protocol V3.0

# LIVESTOCK PROTOCOL





CLIMATE  
ACTION  
RESERVE

# What is a Project Protocol?

- Project protocols provide guidance for specific project activities
  - Project definition
  - Eligibility criteria
  - Tests for additionality
  - Quantification boundaries
  - Quantification methodologies
  - Monitoring and metering requirements
  - Verification guidance





CLIMATE  
ACTION  
RESERVE

# The Big 5 Tests

- REAL
  - It can be accurately measured.
- ADDITIONAL
  - Occurs outside of any regulatory requirement
    - Including outside capped sector
  - Would not have occurred but for the incentive provided by a GHG market.
- VERIFIABLE
  - It can be independently verified.
- ENFORCEABLE
  - Its ownership is undisputed.
- PERMANENT





# Protocol Development Process

1. Literature review
2. Scoping/kick-off meeting
3. Multi-stakeholder workgroup formation
4. Draft protocol to workgroup
5. Revised draft released for public comment
6. Public workshop
7. Adoption by Reserve board in public session
  - It is unique for a non-profit Board to meet in public







# Project Protocol Components

Define the GHG reduction project	Section 2
Determine eligibility	Section 3
Establish the GHG assessment boundary	Section 4
Calculate GHG reductions <ul style="list-style-type: none"><li>• Baseline emissions</li><li>• Project emissions</li></ul>	Section 5
Monitoring requirements	Section 6
Reporting requirements	Section 7
Verification guidance	Section 8

# Project Definition



CLIMATE  
ACTION  
RESERVE

“installation of a biogas control system that captures and destroys methane gas from anaerobic manure treatment and/or storage facilities on livestock operations. The BCS must destroy methane gas that *would otherwise have been emitted to the atmosphere in the absence of the project from uncontrolled anaerobic treatment and/or storage of manure.*”



# Inclusions

- All digester technologies (ambient temp and heated covered lagoons, mesophilic plug flow, complete mix tanks etc.)
- All control options as long as the ultimate fate of the methane is destruction.
  - Onsite destruction (flare, engine, boiler, etc.)
  - Transported offsite via a transmission/ distribution pipeline for destruction
  - Destruction in/for vehicle power
- Centralized Digesters



# Exclusions

- Digesters installed at operations where the primary pre-project treatment method was aerobic (i.e. composting, dry lot storage)
- GHG reductions from other activities and changes in operations not associated with installation of a BCS
- “Greenfield” sites in geographic locations where anaerobic lagoons are not common practice
- Poultry, beef, horse (or other non-dairy or swine) farms
- CO<sub>2</sub> reductions associated with displaced grid-electricity and/or offsite fossil fuel use
- N<sub>2</sub>O sources within the physical boundary (conservative)

# Eligibility Rules



CLIMATE  
ACTION  
RESERVE

<b>I: Location</b>	→	<i>U.S. and its territories</i>
<b>II: Project Start Date</b>	→	<i>No more than 6 months prior to project submission</i>
<b>III: Anaerobic Baseline</b>	→	<i>Demonstrate anaerobic baseline conditions</i>
<b>IV: Additionality</b>	→	<i>Meet performance standard</i>
	→	<i>Meet Legal Requirement Test</i>
<b>V: Regulatory Compliance</b>	→	<i>Compliance with all applicable laws</i>



# Start Date

- Start date is the date at which BCS becomes *operational*
  - Date can be chosen by project developer, must be within 6 months of when digester first starts producing and destroying methane gas (allows for a 6 month start-up period)
- Mexico – start date is date at which methane first produced and destroyed
- 10 year crediting period, renewable once under most current protocol

# Anaerobic Baseline Requirement



CLIMATE  
ACTION  
RESERVE

- All Livestock operations must demonstrate that the baseline manure treatment was an open anaerobic lagoon, with a depth of at least 1 meter
- This is a key element of verification, and the project developer will need to provide evidence of the pre-project manure management system



# Greenfields

- Greenfield livestock projects (i.e., projects that are implemented at new livestock facilities that have no prior manure management system) are eligible only if the project developer can demonstrate that uncontrolled anaerobic storage and/or treatment of manure is common practice in the industry and geographic region where the project is located.





# Performance Standard

- Must meet a **Performance Standard Threshold** representing “*better than Business as Usual*”
  - Technology specified threshold – collection and destruction via a biogas control system (BCS)
  - Installation of BCS where not required to by regulation
- Performance Standard based on evaluation of US /Mexico livestock manure management practices
  - Specifically, the market penetration of manure digester systems



# Legal Requirement Test

- US:
  - Must meet an *initial* **LRT** assessing if project reductions would have occurred as a result of federal, state or local regulations (FSL)
  - Demonstrate no regulation requiring installation of manure digester system
    - Once, at the time of the project's registration
    - Crediting period not affected if rules change during the crediting period
- Mexico:
  - Must meet an *annual* **LRT** assessing if project reductions would have occurred as a result of federal, state or local regulations (FSL)
    - Crediting period lasts from start date until date at which Legal Requirement to install BCS comes into force

# Verification of Legal Requirement Test



CLIMATE  
ACTION  
RESERVE

- Project developers are required to submit a signed Attestation of Voluntary Implementation:
  - US - During first verification
  - MX - For each verification
- Monitoring Plan must include procedures to demonstrate eligibility
- Attestation of Voluntary Implementation does not negate verifier responsibility
- Verifier must conduct a risk-based review for Legal Requirement Test
- Confirmed once per reporting period



# Regulatory Compliance

- Projects must be in material compliance with all applicable laws.
  - Air, water permits
  - Nutrient management
  - CAFO
- No credits may be issued for periods of material non-compliance



# Quantification

## Equation 1: GHG reductions from installing a biogas control system

$$\text{Total GHG Reductions} = (\text{Modeled baseline emissions}_{\text{CH}_4} - \text{Project emissions}_{\text{CH}_4}) \\ + (\text{Baseline emissions}_{\text{CO}_2} - \text{Project emissions}_{\text{CO}_2})$$

**OR**

$$\text{Total GHG Reductions} = (\text{Total quantity of metered and destroyed methane}) \\ + (\text{Baseline emissions}_{\text{CO}_2} - \text{Project emissions}_{\text{CO}_2})$$



# Data Requirements

Site specific data requirements for calculations:

- Livestock population by category
- Monthly average temperature
- Baseline manure handling data (what waste went to what storage/treatment system)
- BCS collection and combustion efficiency
- Biogas flow, temperature, pressure
- CH<sub>4</sub> content
- Non-BCS waste handling data
- CO<sub>2</sub> from stationary and mobile combustion

# Reporting / Verification Options



CLIMATE  
ACTION  
RESERVE

US V3.0 (and MX V2.0) allows for 3 options after project's initial verification and registration\*:

1. 12-month maximum reporting period and verification cycle (standard cycle)
2. 12-month reporting period and verification cycle with desktop verification (every other year)
3. 24-month maximum reporting period and verification cycle

\* Initial verification must cover a minimum of 3 months (1 quarter) of emission reductions, and must include a site visit. Project developer may choose to utilize one option for the duration of a project's crediting period, or may choose different options at different points during a single crediting period





CLIMATE  
ACTION  
RESERVE

How it all works

# THE RESERVE PROCESS







CLIMATE  
ACTION  
RESERVE

# Basic Steps

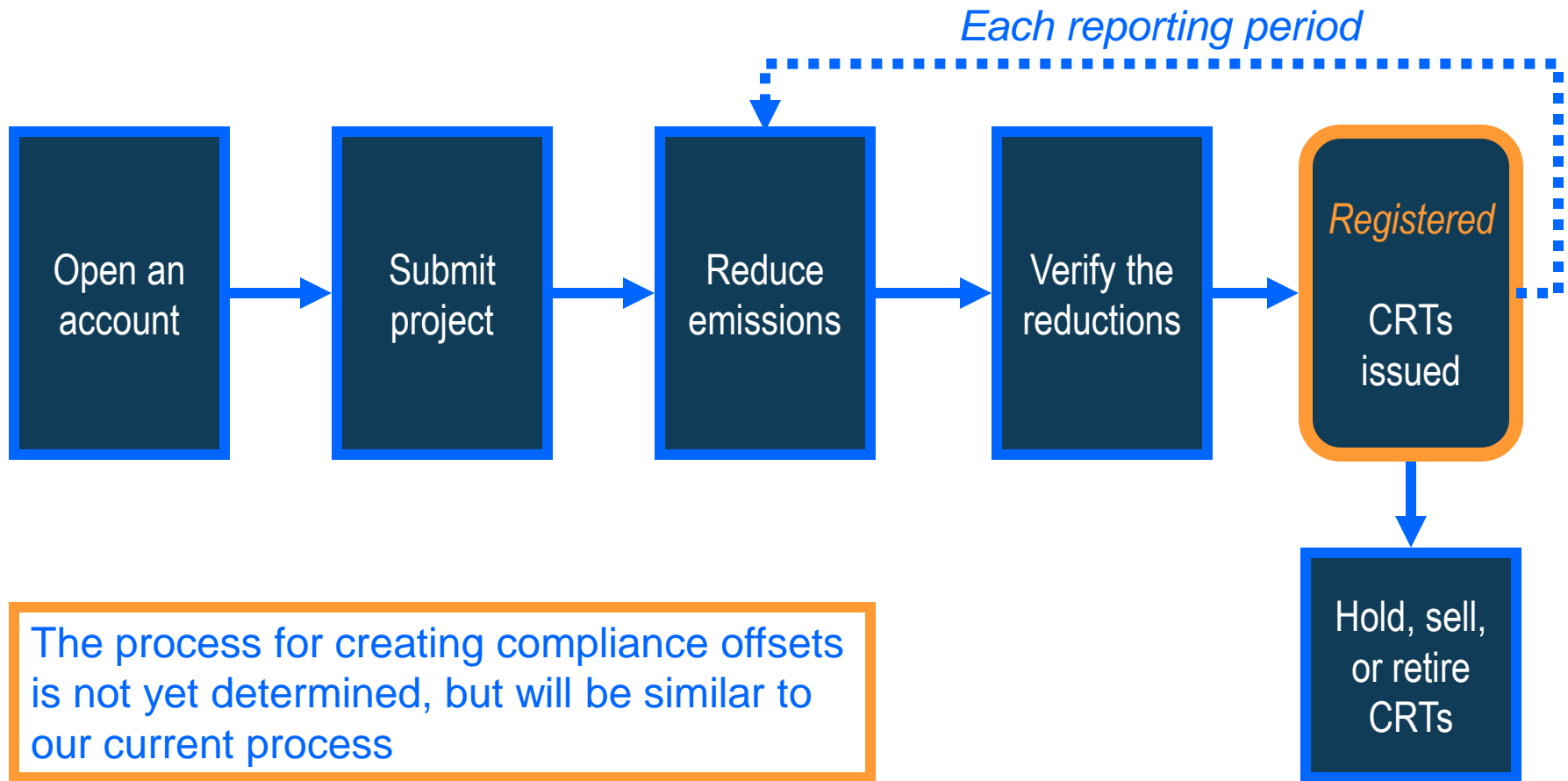
1. Account creation
2. Submittal
3. Listing
4. Verification
5. Registration





CLIMATE  
ACTION  
RESERVE

# The Reserve Process





CLIMATE  
ACTION  
RESERVE

# Verification

- Verification bodies (VBs) must get accredited to ISO standards by American National Standards Institute (ANSI)
- Lead Verifiers must take protocol-specific and general Reserve training
- VB submits NOVA/COI form and receives approval from Reserve to proceed
- Developer hires accredited and trained VB
  - VB makes determination as to the accuracy of reported CRTs
  - Project documents, verification report and verification opinion submitted to the Reserve





CLIMATE  
ACTION  
RESERVE

# Buying & Selling CRTs

- Must have an account with the Reserve to hold CRTs
- No financial transactions within the system, only CRT transfers
- How to trade?
  - Purchase directly from a Project Developer
  - Purchase through a Trader/Broker/Retailer
  - Purchase futures on an exchange
- Forward sales are very common
- [www.climateactionreserve.org/how/crt-marketplace](http://www.climateactionreserve.org/how/crt-marketplace)





CLIMATE  
ACTION  
RESERVE

# Information Sources

- DOCUMENTS

- Livestock Project Protocol V3.0
- Errata & Clarifications to LS V3.0
- Program Manual
- Verification Program Manual

- TRAINING

- Project Developer Training webinars (free for Account Holders)
- Verifier Training (in-person, usually Los Angeles)





CLIMATE  
ACTION  
RESERVE

# More Information

[www.ClimateActionReserve.org](http://www.ClimateActionReserve.org)

Program help: [help@climateactionreserve.org](mailto:help@climateactionreserve.org)

Technical help: [policy@climateactionreserve.org](mailto:policy@climateactionreserve.org)

Phone: (213) 891-1444

<http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>



# Agenda



CLIMATE  
ACTION  
RESERVE

- 2:00** Introduction to the Climate Action Reserve and the Livestock Project Protocol  
*Max DuBuisson, Climate Action Reserve*
- 3:10** Project Monitoring & Verification  
*Nick Facciola, LRQA Americas Sustainability, Inc.*
- 3:40** Break
- 3:50** Project Development & Case Study  
*Peter Freed, Terra Pass*
- 4:25** Project Development & Case Study  
*Lauren Wittig, Camco International*
- 5:00** Adjourn

