

# Offsets and Rural Communities – the California Experience

**Senate Committee on Environment and Natural Resources  
and  
House Committee on Energy and Environment  
State of Oregon**

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***June 12, 2017  
Salem, OR***



# Winrock International Institute for Agricultural Development

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*Non-profit organization that works in the U.S. and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources*

- Formed in 1985 from three Rockefeller family organizations
- Dedicated to economic development and sound resource management in the U.S. and around the world
- Climate change and its impacts on the poor are a central concern
- Supports market mechanisms as a means to improve the environment and alleviate poverty



Winthrop Rockefeller,  
Governor of Arkansas

- **First U.S. voluntary greenhouse gas registry, founded 1996**
  - 80+ million tons of CO<sub>2</sub>-e emissions reduction credits issued
- **Registry roles:**
  - Develop and approve carbon protocols/methodologies
  - Review and register projects
  - Oversee independent verification
  - Issue serialized offsets
  - Transparently track transactions and retirements
- ARB-approved Offset Project Registry (OPR) and Early Action Offset Program (EAOP) for the California cap-and-trade program





# CA Air Resources Board Compliance Offsets Protocols

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- Forestry (Improved Forest Management, Avoided Conversion, Reforestation)
- Livestock Manure Digesters
- Rice cultivation
- Destruction of Ozone Depleting Substances
- Mine Methane Capture
- Urban Forestry



# ARB Offset Credits (ARBOCs) Issued

Project Type	ODS	Livestock Digester	US Forests	Mine Methane	TOTAL
<b>Compliance</b>	7,801,143	1,782,340	22,647,881	1,261,550	33,492,914
<b>ACR compliance volume (%)</b>	4,091,711 52%	305,215 17%	12,233,685 54%	773,204 61%	17,403,815 52%
<b>Early Action</b>	6,336,710	1,695,029	11,657,580	2,879,684	24,187,917
<b>TOTAL</b>	14,137,853	3,477,369	35,924,375	4,141,234	<b>57,680,831</b>

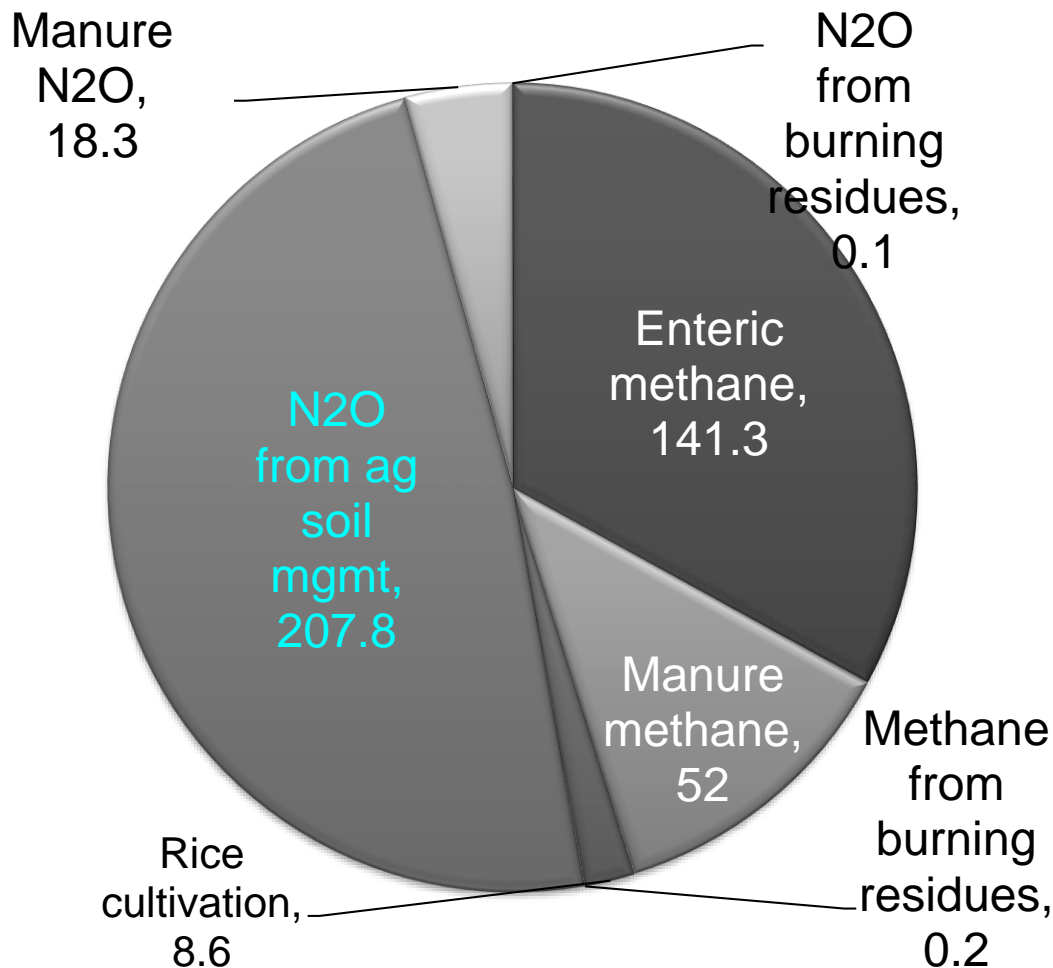
- ARBOCs issued from 283 projects: 166 compliance & 117 early action
- Projects: ODS 105; Forestry 58; Livestock 108; Mine Methane 12
- ACR has issued 23 million ROCs awaiting conversion to ARBOCs

\* As of May 22, 2017

# Forest Carbon in Oregon

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- California cap-and-trade
    - Warm Springs Confederated Tribes
    - Green Diamond Klamath East
    - Green Diamond Klamath West
  - Voluntary
    - Bear Creek Watershed (City of Astoria)

# Emissions from U.S. agriculture (MMT CO<sub>2</sub>e, 2010)



- Agriculture = 428 MMT CO<sub>2</sub>e or 6.3% of US GHG emissions
- Largest source is N<sub>2</sub>O from fertilizer

# Fertilizer Management

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- Reducing N fertilizer application in crop production can reduce  $\text{N}_2\text{O}$  emissions.
- $\text{N}_2\text{O}$  reductions are permanent.
- $\text{N}_2\text{O}$  reductions can be implemented across a wide range of crops and geographic areas in the U.S. and abroad.
- $\text{N}_2\text{O}$  reductions can be achieved at low cost.
- $\text{N}_2\text{O}$  reductions in crop production provide ancillary co-benefit of improved water quality.

# Grazing Land & Livestock Management

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- Comprehensive and flexible accounting framework for any beef/dairy GLLM activity that impacts enteric, manure, fertilizer, or fossil fuel GHG emissions or biotic sequestration
  - Non-prescriptive on practices
- Modular structure
  - Some activities only impact some SSRs
- Scaled accounting methods based on *ex ante* estimate of impacts in each source/pool
  - Thresholds at 5,000 and 60,000 tCO<sub>2</sub>e/year



# Compost Additions to Grazed Grassland

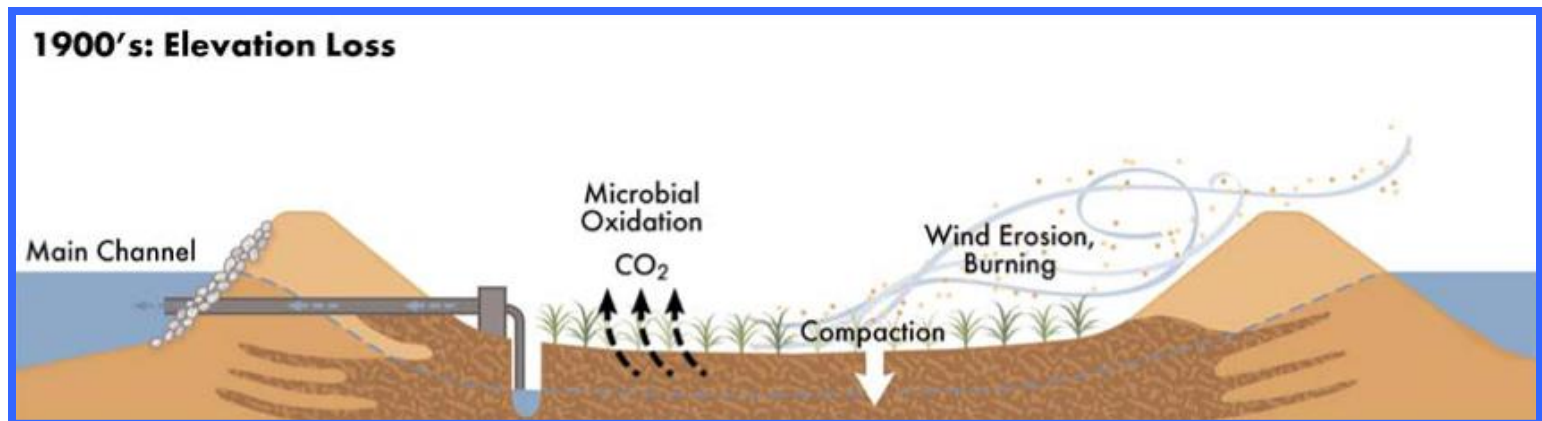
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- Quantification framework for emissions reductions from
  - avoiding anaerobic decomposition of organic material used in compost production (optional)
  - directly increasing soil organic carbon (SOC) content by applying compost to grazed fields
  - indirectly increasing SOC sequestration through enhanced plant growth in amended fields.



# California Wetland Restoration

- Wetland restoration in the SSJ Delta, Suisun Marsh, and tidal wetlands along the CA coast
- Carbon sequestration, biomass accretion
- Avoidance of organic soil oxidation and subsidence
- Project activities: agriculture to wetland, dry agriculture to rice, open water to wetland
- Co-benefits: water retention, levee stability, fish and bird habitat, subsidence reversal, investment in the delta



# Carbon Accretion, Habitat Creation

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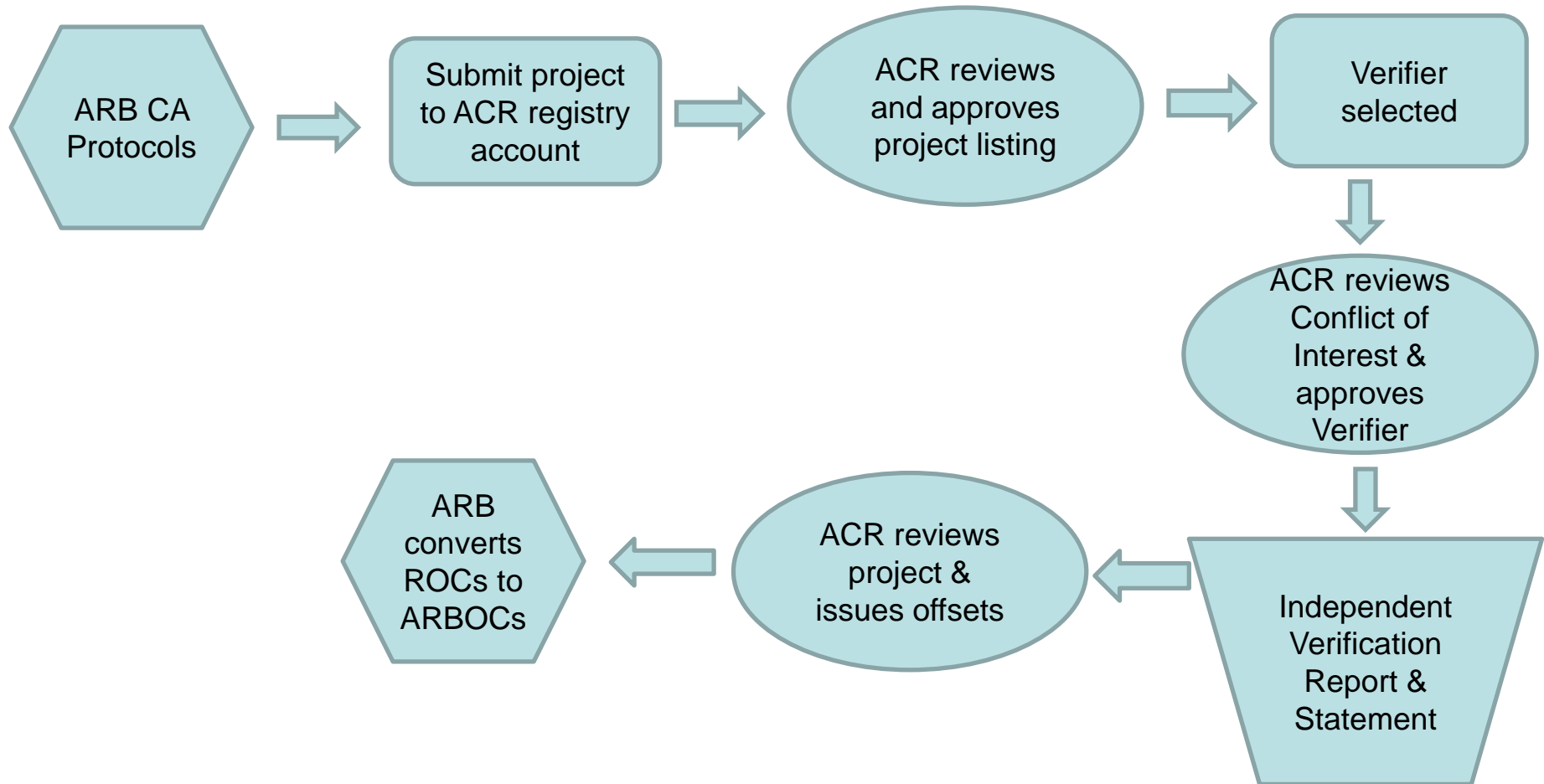


Oxidizing drained peat soil.....

Restored wetland accreting carbon...



# Carbon Offset Development Cycle in California



# Washington State Model for Compliance Offsets

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- Clean Air Rule took effect Jan. 1, 2017
- Specific voluntary protocols approved (9 ACR's)
- Voluntary registries issue offsets from their own protocols
- Registry offsets acceptable as compliance instruments

# Lessons for Rural Projects from California Experience

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- At current carbon prices, costs are barrier to offset project types with low volumes
  - Fragmented farming operations and few credits per acre
  - Aggregation not allowed in California due to invalidation provisions
  - Aggregation possible in Quebec (and Ontario) due to buffer pool approach

# Lessons for Rural Projects from California Experience

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- Programs investing auction revenue should be compatible with offsets protocols
  - CA government programs can only ensure sequestration for three years; offsets can provide long-term financial support
  - To guard against reversal, quantification methods for GHG benefits should align with offsets protocols
  - Technical assistance may be necessary to help landowners meet data requirements of offsets protocols
- Interest in more in-state offsets
  - Consider giving DEQ discretion for higher or no limit on offsets from projects in Oregon, so long as WCI linkage not jeopardized

## Contact Information

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