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Ms. Margaret Williams
Technical Director for the American Carbon Registry

WEBINAR SERIES

CLOSING THE LOOP: ENVIRONMENTALLY SOUND MANAGEMENT OF END-OF- LIFE ODS AND HFC

Incentives for ODS Destruction from Carbon Finance

Margaret Williams
Technical Director
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UNIDAD TÉCNICA OZONO
Colombia



This webinar is being organized within the
framework of a project funded by US EPA

American Carbon Registry

- Founded in 1996 as the first private voluntary GHG registry
- Approved in December 2012 as California Offset Project Registry & Early Action Offset Program
- Approved in 2020 to supply Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) eligible credits
- 125+ million tons of CO₂-e emissions reductions issued
- Carbon offset project types across sectors



Winrock International Institute for Agricultural Development

- Believes that markets are the most effective path to mobilize actions to reduce emissions
- Operates ACR to stimulate opportunity for GHG reductions in new sectors, to create confidence in integrity of actions and results, and to serve as an incubator for new compliance markets



Carbon Offsets

= 1 metric ton of CO₂e emissions reductions or removals from an unregulated source, fungible with other offsets, and of a specific year.



Carbon Offsets

Real

GHG reductions or removals result from demonstrable actions that have already occurred. **Ex post** GHG accounting is conservative, comprehensive and scientifically credible.

Additional

GHG reductions or removals exceed those otherwise required by law, regulation or legally binding mandate.

Carbon Offsets

Permanent

GHG reductions or removals are not reversible. When they are, mechanisms are in place to replace any reversed emissions reductions or removals, to ensure credited reductions endure.

Quantifiable

GHG reductions or removals can be accurately measured or calculated relative to a project baseline, in a reliable and replicable manner and accounting for uncertainty and leakage.

Carbon Offsets

Verifiable

Offset Project Data Report assertion is well documented and transparent such that it lends itself to an objective review by an accredited third-party verifier (auditor).

Enforcable (CA)

The authority for the California Air Resources Board to hold a particular party liable and to take appropriate action if any of the provisions of the regulation are violated.

Registries

Protect the environmental integrity of offsets

- Develop and approve environmentally rigorous carbon offset accounting standards & methodologies (protocols)
- Review and register GHG emissions reduction projects, including issuance of serialized offsets
- Operate a transparent registry system
- Oversee independent verification by accredited entities

Project Development Process



Program	Gases, Geography
California Cap and Trade Program (Compliance Market)	CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115, HCFC-22, HCFC-141b U.S. Stockpiles, Equipment, Systems ; U.S. destruction
American Carbon Registry (Voluntary Market)	CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115, HCFC-22, HCFC-141b, HFC-134a, HFC-245fa, Halon 1211, Halon 1301 U.S. Equipment, Systems, Stockpiles w/ restrictions; U.S. destruction
	CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115 Equipment, Systems, Stockpiles w/ restrictions, Outside U.S. w/ restrictions, Destruction facility meets TEAP Standards
Climate Action Reserve (Voluntary Market)	CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115, HCFC-22, HCFC-141b U.S. Equipment, Systems, Stockpiles w restrictions; U.S. Destruction
	CFC-11, CFC-12, CFC-113, CFC-114, HCFC-22, HFC-32, HFC-125, HFC-134a, HFC-143a Mexican Equipment, Systems, Stockpiles w/ restrictions; Destruction facility meets TEAP Standards
Verra (Voluntary Market)	CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115, HCFC-22, HCFC-123, HCFC-124, HCFC-141b, HCFC-142b, HCFC-225ca, HCFC-225cb Article 5 and Non-Article 5 Countries. Only CFC Stockpiles; Destruction Facility meets TEAP Standards

Regulatory Additionality

ACR's additionality requirements are intended to ensure that credited offsets **exceed** the GHG reductions and removals that would have occurred under **current laws and regulations**, current industry practices, and without carbon market incentives.

- Kigali Amendment to the Montreal Protocol
- American Innovation in Manufacturing Act (AIM)
- Significant New Alternatives Policy (SNAP) (federal and state)

Facility Eligibility

- Multiple destruction events, single destruction facility
- HWC with a RCRA permit with > 99.99% destruction efficiency
- Facility that meets or exceeds Montreal Protocol TEAP Standards and >99.99% destruction efficiency certified within 3 years
- Must meet CAA and NESHAP standards
- Title V air permit at time of destruction; other required permits
- SSMP

ODS Eligibility

General	
<ul style="list-style-type: none">• U.S. sources and destruction only• Government stockpiles not eligible	<ul style="list-style-type: none">• Building and appliance foams only• Extraction and transportation requirements
Refrigerant Sources	Foam Sources
<ul style="list-style-type: none">• CFC-11• CFC-12• CFC-13• CFC-113• CFC-114• CFC-115• HCFC-22 (ACR Voluntary)	<ul style="list-style-type: none">• CFC-11• CFC-12• HCFC-22• HCFC-141b• HFC-134a (ACR Voluntary)• HFC-245fa (ACR Voluntary)
Medical Aerosol (ACR Voluntary)	Fire Suppressant (ACR Voluntary)
<ul style="list-style-type: none">• CFC-11• CFC-12• CFC-114• FDA approved; post 2012;	<ul style="list-style-type: none">• Halon 1211• Halon 1301• No 1301 stockpiles

Monitoring Requirements

- Point of Origin
- Chain of Custody (Point of Origin → Destruction)
- Building Locations, Sizes and Construction Dates (Building Foam)
- Number of Appliances, Facility of Extraction and Appliance Destruction
- AHRI Sample (Technician, Time, Date, Employer, Ambient Air T, COC to Lab)



Monitoring Requirements

- CEMS Data
- Certificate of Destruction
- Facility permits
- GCMS monitoring of events
- Technician Certifications
- Facility Permits
- Offset Title



Non –Destruction Management Options for HFCs

- HFC Reclaim
- Switch to low GWP alternatives in Refrigeration Systems
- Switch to low GWP alternatives in Foam Blowing Agents

Impact

		MTCO₂e
ODS Destruction	California (Compliance)*	9,583,836
	ACR (Voluntary)	3,384
HFC Reclaim and Transition to Low GWP Alternatives	California (Compliance)	NA
	ACR (Voluntary)	5,957,096

Conclusions and Outlook

- The California compliance market has been an effective incentive for destruction of CFC ODS in the U.S.
- ACR's methodology for U.S. based ODS destruction has not been used extensively even though more compounds are allowed relative to the California compliance protocol.
- ACR recently adopted a methodology for the destruction of internationally sourced ODS.
- As more HFCs are phased out, carbon markets can be used to incentivize destruction.
- Importance of incentivizing other activities in the interim.



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Thanks for your attention

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