

Kickoff Meeting

Mexico Ozone Depleting Substances Project Protocol Workgroup



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November 13, 2014



Agenda

1. Background
2. Introductions
 - a) Reserve staff
 - b) Contractor
 - c) Workgroup Members
3. Process overview and expectations
4. Initial policy questions

Technical issues? Please email gillian@climateactionreserve.org



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Item 1

BACKGROUND



Who are we?

- Not-for-profit founded in 2001 (formerly known as the California Climate Action Registry)
- Voluntary offset project registry
 - Develop standardized offset protocols and issue CRTs to projects verified against those standards
 - U.S. and Mexico
- Accredited Offset Project Registry
 - Process projects and issue credits under the CA cap-and-trade program
 - Five Reserve protocols have been adopted for compliance use



Our Protocols

- Developed with extensive input from the public
 - Public meetings, working groups with experts, public comments
- The aim is to create a uniform standard standardization, widely recognized and based on best practices
- Designed as step by step instructions for developing projects



Current U.S. protocols

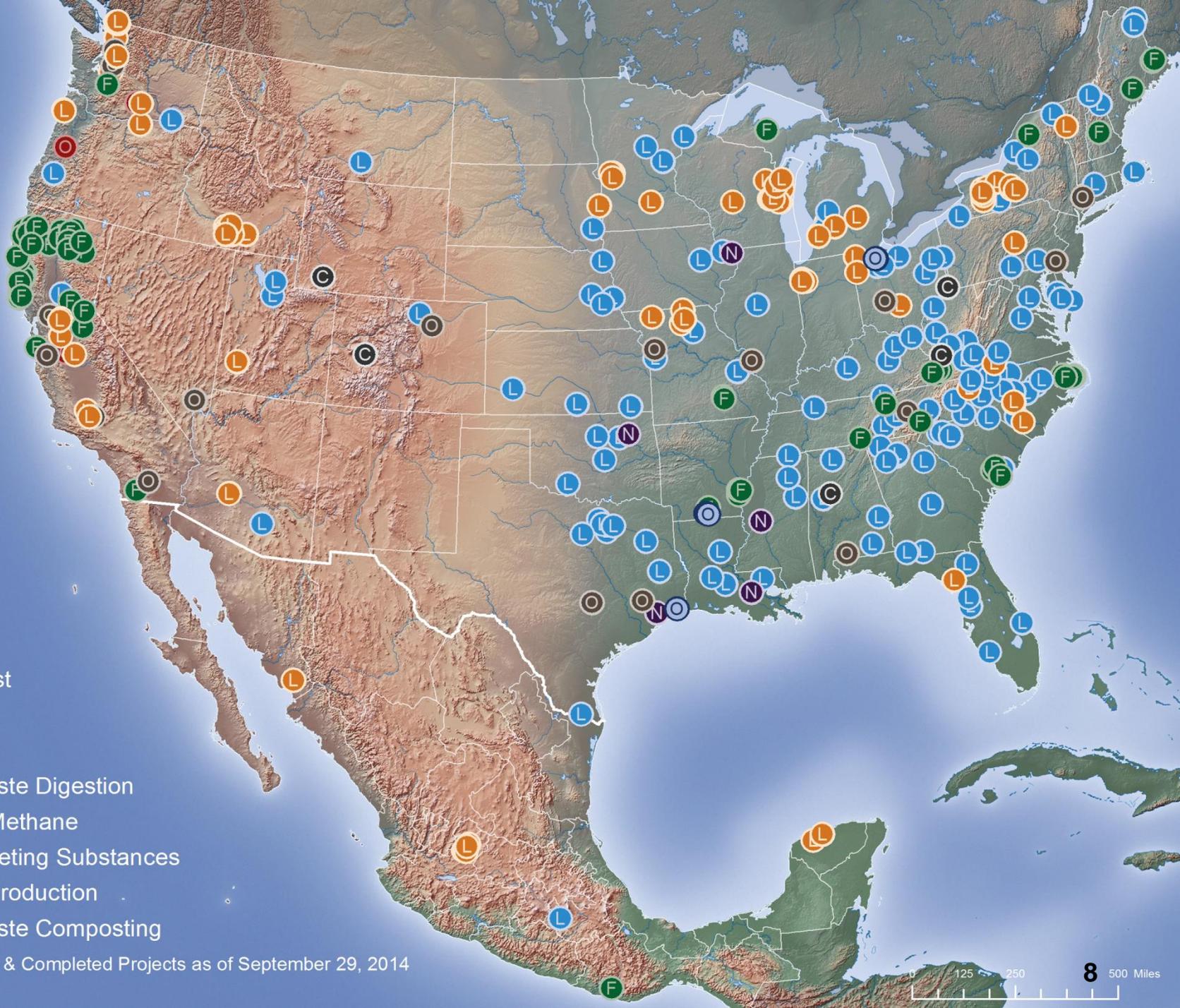
- Ozone Depleting Substances Destruction (US & Article 5)
- Forest (US & Mexico)
 - Improved Forest Management
 - Avoided Conversion
 - Reforestation
- Urban Forest
- Livestock Manure Management (US & Mexico)
- Coal Mine Methane Capture
- Landfill Gas Capture (US & Mexico)
- Organic Waste Digestion
- Organic Waste Composting
- Nitric Acid Production
- Rice Cultivation
- Nitrogen Management
- Avoided Conversion of Grasslands (*in development*)

Las Pruebas Grandes



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- **REAL**
 - Can be measured accurately.
- **ADDITIONAL**
 - Occurs outside of any requirement or regulation
 - It would not have happened if not for the carbon market incentive
- **VERIFIABLE**
 - It can be verified independently
- **ENFORCEABLE**
 - Undisputed ownership
- **PERMANENT**



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- Forest
- Livestock
- Landfill
- Organic Waste Digestion
- Coal Mine Methane
- Ozone Depleting Substances
- Nitric Acid Production
- Organic Waste Composting

Listed, Registered & Completed Projects as of September 29, 2014



Reserve by the numbers

Total offset credits registered	55.4 million tCO₂e (includes 10.4 million from ODS protocols)
Retired	13 million
Transferred to ARB	10.9 million
Total projects	403
Completed verification	263
Account Holders	308

As of 10/31/14



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Item 2

INTRODUCTIONS



Reserve staff

Teresa Lang

Policy Manager

- Protocol development lead
- Run workgroup process
- Manage contractor
- Spanish / English

Heather Raven

Policy Coordinator

- Assist Teresa in coordinating the development process (scheduling, meeting logistics)
- English-only



Roles and responsibilities

- Reserve staff
 - Process management
 - Protocol drafting
- Contractor
 - Technical assistance
 - Mexico-specific adaptations
- Workgroup
 - Policy assistance & Expert feedback
 - Mexico-specific adaptations



Technical Contractors

- Coordinated by **Ruby Canyon Engineering**, with support from a team of sub-contractors in Mexico
- Team combines specialized GHG experts on ODS offset protocols and projects, ODS destruction in the U.S., and Mexico environmental regulations
- Ruby Canyon Engineering has over six years of experience verifying offset projects across North America and internationally, including working with ODS destruction projects in the U.S.
- Primary Team Members
 - Zach Eyler – Ruby Canyon Engineering
 - Michael Cote – Ruby Canyon Engineering
 - Peter Browning – Ruby Canyon Engineering
 - Ana Maria Contreras
 - Gloria Garcia
 - Julio Yáñez

Workgroup members



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Name (alphabetical)	Organization
Alan Rodolfo Bastida Morales	SEMARNAT
Edgar Diaz Palestina	Trade Supply Integral SA de C.V.
Danae Diaz Pesce	TÜV Rheinland Mexico
Rodolfo Garza	Quimobasicos
Antony Lozano	Ecofrigo Refrigerant Reclamation Facility
Laura Martonova	Energy Changes Projektentwicklung, GmbH
Alejandro Oropeza	FIDE
Agustin Quintana	Silver Breeze
Agustín Sánchez Guevara	SEMARNAT
Felipe Adrian Vazquez-Galvez	Universidad Autonoma de Ciudad Juarez



Attribution

- Workgroup members will be listed on the website by organization only
 - Let us know if you want the listing formatted differently from what was on the last slide
- Workgroup members and their organizations will be listed in the front of the protocol document



Observers

- Workgroup meetings are public, but each meeting is not widely publicized
- Interested stakeholders may register as “observers” at any time, and will be invited to listen to meetings and review materials, but not participate directly in WG activities
- Current observer organizations:

International Energy Studies Group, Lawrence Berkeley National Lab (LBNL)	Quimobasicos
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Item 3

PROCESS OVERVIEW AND WORKGROUP EXPECTATIONS



Protocol Development Timeline

This schedule is preliminary and subject to change.

Milestone/Task	Timeline
Commence Protocol Development	September 2014
1 st Workgroup Meeting	November 2014
Reserve staff works with contractors to draft protocol	September – December 2014
Workgroup comments on draft protocol	December 2014 – January 2015
2 nd Workgroup Meeting (in person in Mexico)	January 2015
Public Comment Period	February 2015
3 rd Workgroup Meeting (only if necessary)	February 2015
Adoption of the Protocol by the Reserve's Board of Directors	April 2015



Workgroup expectations

- Attend and participate in WG calls, which will be in Spanish, to the fullest extent possible
- Review Background Papers and Draft Protocols, which will be in English; Providing comments and feedback on draft protocols and specific policy and technical questions
- Attend in-person meeting in Mexico
 - Once draft protocol is ready for WG review
 - Likely in Mexico City (DF), week of January 5th (or 12th)
 - The Reserve cannot assist with travel expenses, but we plan to provide access via webinar for those who cannot join in person
- Be constructive, collaborative, and productive

Protocol development overview

UPDATE for ADAPTATION



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- **GOAL:** Develop a carbon offset protocol that incentivizes destruction of ODS sourced from Mexico at destruction facilities in Mexico
- **APPROACH:** Adapt the Reserve's ODS destruction protocols for use in Mexico. Maintain consistency across ODS protocols whenever possible, attempting to minimize the number of requirements, definitions, and/or processes that need to be adapted/changed significantly for use in Mexico.



Protocol development overview

- Because this protocol is an adaptation of the existing Article 5 ODS Protocol, there is a limited scope of protocol requirements and standards which are “on the table” for discussion (ie. issues which need to be adapted).
- For ease of discussion, we have grouped them into 3 categories:
 - Areas that will be adapted for Mexico
 - Areas we would consider changing, if the WG has concerns
 - Areas of the protocol that will not change



Protocol organization

1. Introduction
2. Project Definition
3. Eligibility
4. GHG Assessment Boundary
5. Quantification
6. Monitoring
7. Reporting
8. Verification
9. Glossary
- Appendices

This is standard across Reserve protocols. Keep this format in mind, as it is a useful shorthand to enhance clarity and understanding when discussing protocol issues.



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Item 4

INITIAL POLICY DISCUSSIONS



Item 4a

ESTABLISHED POLICIES IN THE EXISTING ODS PROTOCOLS (UNLIKELY TO CHANGE)



Section 2: Project Definition

- Section defines eligible refrigerants & eligible destruction facilities
- Refrigerants eligible for destruction will be the same as those eligible in Reserve's Article 5 Protocol
- Specifically:

CFC-11 CFC-113

CFC-12 CFC-114

CFC-115

**Sourced from Mexico*



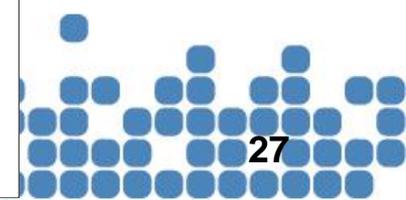
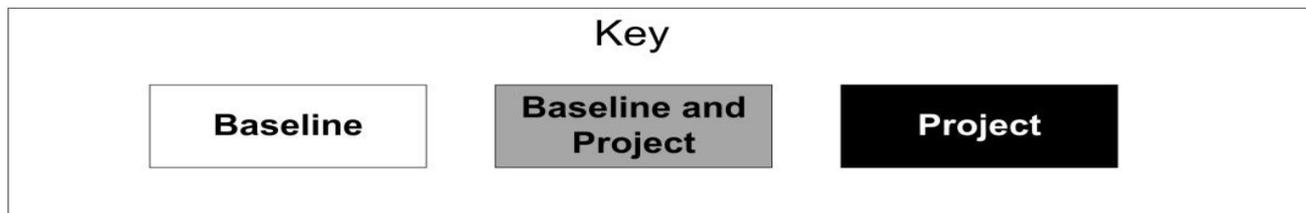
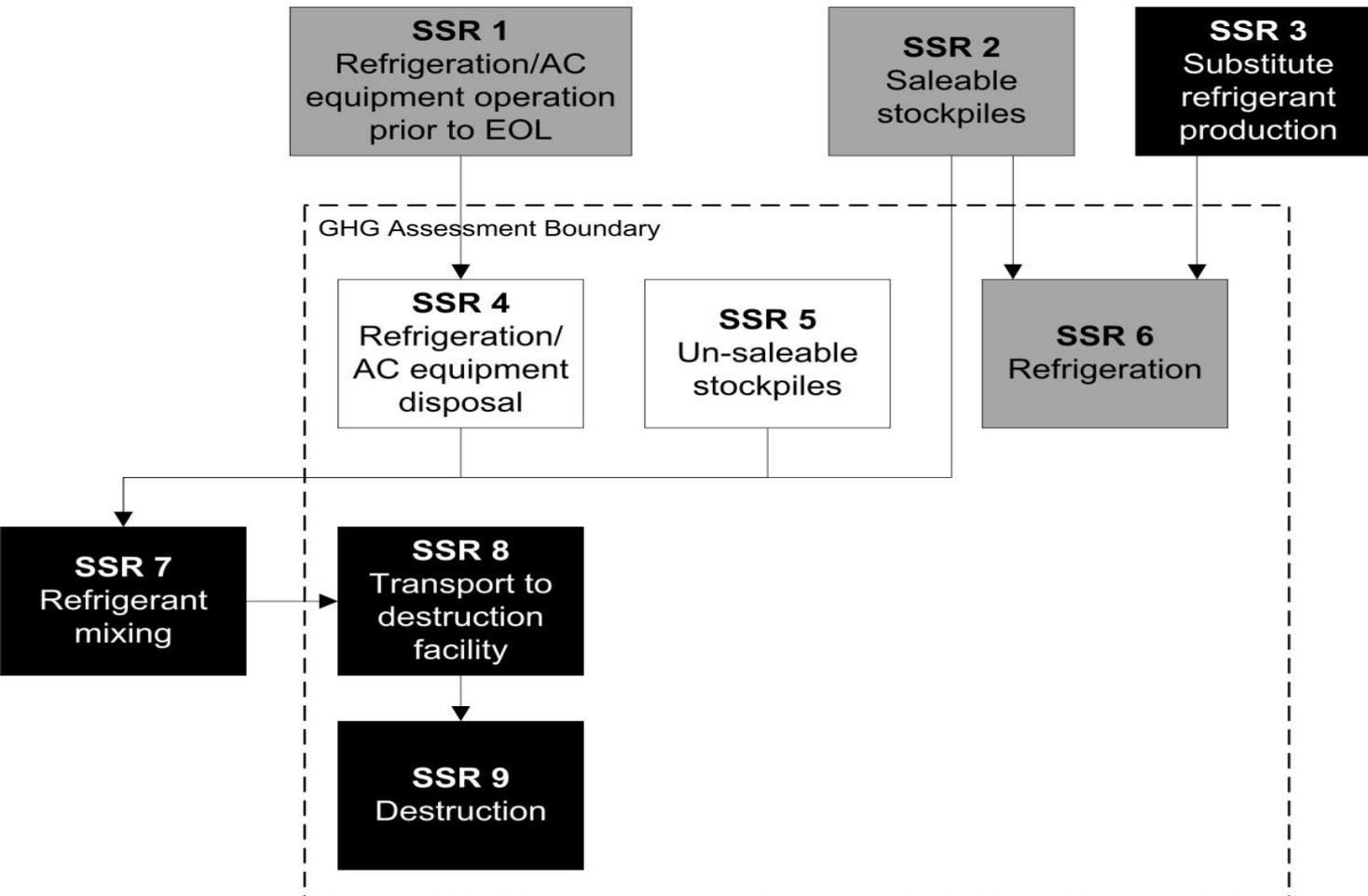
Section 3: Eligibility

- Location – Mexico
- Crediting period – one or more destruction events over a 12-month period, beginning on the project start date.
 - ODS projects are issued CRTs for the quantity of ODS that would have been released over a ten-year period following a destruction event.
 - At the time the project is verified, CRTs will be issued for all ODS emissions avoided by the project over the 10-year crediting period.

Section 4: GHG Assessment Boundary



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Item 4b

MEXICO-SPECIFIC ADAPTATIONS TO PROTOCOL

Standards for Destruction Facilities in Mexico



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- Hazardous waste destruction facilities in Mexico are permitted under NOM-098-SEMARNAT-2002
 - A facility permit must specify if they will be destroying ODS.
- Quimobásicos, S.A. de C.V – currently only facility with permit for ODS destruction that can meet TEAP monitoring requirements
- Neutechnik, S.A. de C.V – currently permitted for Hazardous waste incineration including those substances with Chloro, but this facility may not be able to comply with all TEAP requirements.
- Other hazardous waste incinerators could potentially accept ODS for destruction with permit modification.

Standards for Destruction Facilities in Mexico



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Current Recommendation

- Destruction facilities must be permitted under NOM-098-SEMARNAT-2002 and permit must include ODS
- Destruction to defined as “any activity that results in the elimination of ODS with an efficiency of 99.9999 percent or higher”
 - DRE calculated on an annual basis
- Operating parameters must be monitored to TEAP requirements
 - ODS feed rate, operating temperature and pressure, effluent (water and pH), CO, electricity and consumables (not required)
- Problems encountered during operation and corrective actions shall be noted in the daily log, as required by their permit

Analysis of Composition & Quantity of ODS



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Composition of ODS

- Goal is to allow the ODS to be sampled and analyzed in Mexico – sending samples to the U.S. for analysis is not ideal or feasible
- Mexico has no official standards for ODS analysis, so international standards would take precedence
 - AHRI 700-2006: Standard for Specifications for Fluorocarbon Refrigerants is used for U.S.
- Mexican Accreditation Entity (EMA) - is a private NGO that develops laboratory testing & accreditation standards recognized by the government

Analysis of Composition & Quantity of ODS



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- Currently, there is one testing lab located at one of the Centro de Reciclado de Refrigerantes (CRR) and a testing lab at Quimobásicos
 - Neither are accredited by EMA
 - Could pursue a testing standard similar to AHRI 700-2006

ODS Quantity

- Would be determined by using scales to weigh the ODS
- Scale accuracy is required to be checked by Verification Units or PROFECO on an annual basis
 - Scales are verified annually, not necessarily calibrated, unless outside of the accuracy thresholds

Analysis of Composition & Quantity of ODS



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Current Recommendation

- Use testing laboratories in Mexico and follow the AHRI 700-2006 standard as closely as possible
 - Laboratory must provide documentation to prove/demonstrate this
- Allow Quimobásicos (and other destruction facilities) to conduct ODS analysis testing except for their own projects
- *If the protocol required laboratories to be EMA accredited, how difficult would this be for labs to achieve? Is this expensive? What are the barriers to this?*
- Require that all scales used for ODS weighing be verified every 6 months, at minimum
 - *Would verifying scales every 3 months (as required in US and Article 5 Protocols) be too difficult?*



Regulatory Compliance

- The following laws and regulations are relevant to Mexico ODS destruction projects:

Regulation	Area Covered
NOM-098-SEMARNAT-2002	Emissions limits for hazardous waste incineration.
NOM-010-SCFI-1994	Standards for measuring instruments.
NOM-052-SEMARNAT-2005	Hazardous waste listings.
NOM-002-SCT-2011	Hazardous waste transport.
NOM-003-SCT-2008	Hazardous waste labeling.
NOM-161-SEMARNAT-2011	Special management plans



Regulatory Compliance

Current Recommendations

- Projects must be in material compliance with all applicable laws at all times during each reporting period
- The requirement includes:
 - Operations of destruction facilities
 - Facilities where mixed ODS projects are mixed and sampled, if applicable
 - All CRRs that are involved with a project
 - Transportation of the ODS to the destruction facility

Are any requirements/regulations being missed?



Legal Requirements

- Current laws and regulations are being reviewed to determine whether any require the destruction of ODS (now and in future)
 - Does anyone know of any?
- Several laws and programs encourage strategies for reducing GHG emissions and waste, including:
 - National Development Plan
 - General Law of Ecological Balance and Env. Protection (LGEEPA)
 - General Law for the Prevention and Management of Waste (LGPGIR)
 - General Law on Climate Change



Legal Requirements

- Background paper being developed will have large section on current laws and regulations and their implication on ODS destruction

Current Analysis

- No current requirement to destroy ODS in Mexico
- A requirement to destroy ODS in the near future is unlikely



Item XX

**AREAS WHERE MEXICO-
SPECIFIC ADAPTATIONS TO
PROTOCOL WILL BE
CONSIDERED IF NECESSARY**



Chain of Custody Procedures

- Custody and Ownership of ODS must be established
 - Records shall include contact information of persons buying/selling ODS
 - Record options include
 - purchase orders
 - purchase agreements
 - packing lists
 - bills of lading
 - lab test results
 - transfer container information
 - receiving inspections
 - freight bills
 - transactional payment information
 - other information that supports previous ownership of ODS and transfer of ownership



Chain of Custody Procedures

- Start date (Section 3 – Eligibility) – Based on Reserve’s US Protocol

Type of ODS Project	Proposed Start Date
Non-mixed ODS projects that are not aggregated at the destruction facility	The day project ODS departs the final storage or aggregation facility for transportation to the destruction facility
Non-mixed ODS projects where eligible material is aggregated at the destruction facility	The day destruction commences, as documented by a Certificate of Destruction
Mixed ODS projects	The day that mixing procedures begin.

- *Could changes here help address fraud risk?*



Chain of Custody Procedures

- ODS Sampling
 - Point of sampling to laboratory for each sample must be documented by paper bills of lading or electronic, third-party tracking that includes proof of delivery

Discussion

- *Are the current requirements sufficient to prevent fraud?*
- *What more could be done?*
- *Should we change the start date definition to extend the temporal project boundary?*



Performance Standard

- For the Article 5 Protocol, the Reserve evaluated whether destruction of ODS was common practice in Article 5 countries, including Mexico.
- A 2009 UNEP Report on destruction data 1990-2008 showed that only seven Article 5 countries reported any ODS destruction
- Mexico reported destruction of 0.7 tonnes in 2008; believed to be very little (if any) CFCs)
- The Reserve determined that destruction of CFC refrigerant from Mexico and other Article 5 countries is not common practice



Performance Standard

- *Is there any reason to believe that destruction of CFCs has increased in Mexico since 2008?*
- *Are there any new laws, incentives, or programs that directly encourage increased destruction?*
- *Has anything else changed since 2008 that may have made the destruction of ODS (CFCs in particular) more common?*
- *Does anyone know of recent reports or other data resources that further affirms that destruction of ODS is not common practice in Mexico?*



Quantification Methodology

- Most of this section will stay the same
- However some changes may be necessary/possible to make more appropriate for Mexico:
 - Assumptions for end-of-life ODS
 - Emission factors for substitute refrigerants
 - Assumptions related to project emissions from transportation and destruction

Quantification: Assumptions on ODS End of Life



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Refrigerant Origin	Baseline Scenario Assumption
Privately held stockpiles of used ODS refrigerant that can legally be sold to the market	Use for recharge of existing refrigeration equipment
Article 5 government stockpiles of ODS refrigerant that can legally be sold into the refrigerant market	Use for recharge of existing refrigeration equipment
Article 5 government stockpiles of ODS refrigerants that cannot legally be sold into the refrigerant market	Continued storage
Used ODS refrigerant recovered from end-of-life equipment	End-of-life release to the atmosphere

Quantification: Substitute Refrigerants



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- When refrigerant ODS are destroyed, continued demand for refrigeration will lead to the production and consumption of substitute refrigerant chemicals

Projects that destroy....	Quantification
Refrigerant from stockpiles (both private and government) that can legally be sold to market...	Must estimate the emissions associated with the non-CFC substitute chemicals that are assumed to be used in their place
Used refrigerant recovered from end-of-life equipment...	Do not need to account for substitutes, as the destruction of this ODS does not increase the demand for substitute refrigerants.
Projects that destroy government stockpiles that cannot legally be sold to the refrigerant market...	



Quantification: Substitute Refrigerants

- A review of the literature in 2009, indicated that HFC-134a and HC-600a are the dominant new refrigerants being used in place of ODS in Article 5 countries. At the time, no reliable, quantitative data could be identified on the relative market share of these refrigerants.
- As such, it is conservative to assume that HFC-134a, with a higher GWP than HC-600a, is the substitute refrigerant
- *Are HFC-134a and HC-600a the dominant substitute refrigerants in Mexico? Are others equally common?*
- *Are there any resources available on Mexican consumption of these substitutes?*

Quantification: Project Emissions from Transportation & Destruction



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- Standard deduction for Article 5 Protocol assumes:
 - Travel of 2,000 miles by truck & 3,000 miles by ocean liner , and
 - Destruction at a facility in the US.
 - May be sufficiently conservative for use in Mexico
- Standard deduction includes:
 - CO₂ emissions from fossil fuel and electricity used by the destruction facility (possibly update)
 - CO₂ emissions from fossil fuel used for transporting the ODS to the destruction facility (possibly update)
 - ODS emissions from incomplete destruction of ODS (no change)
 - CO₂ emissions from ODS oxidation during destruction (no change)



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Item 6

QUESTIONS



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Item 7

NEXT STEPS



Next steps

- Staff and contractor work on technical issues and protocol drafting.
- We will contact individuals or the group as we have questions along the way
- We will share the Background Paper from the contractor in the next week or so
- Please reach out with additional feedback on today's meeting and these additional materials



Next steps

- Workgroup Draft of the Protocol will be distributed in late December for review
- In-Person Meeting in Mexico City to discuss protocol draft – Week of Jan 6th (proposed)
- Workgroup will provide written comments after meeting
- If issues are still unresolved, we may have a 3rd workgroup meeting (via webinar) in February
- There will be additional opportunity to comment on the protocol during the public comment period (February



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Contact Information

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<http://www.climateactionreserve.org/how/protocols/mexico-ozone-depleting-substances-project-protocol/>