

Ozone Depleting Substances Project Protocol Public Workshop



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December 7, 2009
Call-in number: 712-432-3100
Access code: 961845



Agenda

- Climate Action Reserve background
- Protocol development process
- Introduction to the protocols
 - Project definitions
 - Eligibility rules
 - GHG assessment boundary
 - Calculations
 - Monitoring and reporting requirements
 - Verification guidance
- Next steps
- Q&A

What is the Climate Action Reserve?



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- Non-profit GHG offsets registry
- Develop high-quality project standards and register/track offset credits in public online system
- Ensure environmental integrity and quality of offset credits
- Intended to be the premier place to register carbon offset projects for North America
- Reserve stats:
 - 185 account holders
 - 20 projects registered
 - 107 projects listed
 - 42 new projects
 - 1,866,477 CRTs issued

The Standardized Approach

Benefits to a top-down approach:

- Low up-front costs to project developers
- Efficient review and approval of projects
- Transparency and consistency
- Same approach applies across projects
- Prescriptive guidance to eliminate judgment calls

*But...*high initial resource investment to program

Principles of Reserve Project Accounting



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- **Real:** Reductions have actually occurred, and are quantified using complete, accurate, transparent, and conservative methodologies
- **Additional:** Reductions result from activities that would not happen in the absence of a GHG market
- **Permanent:** Reductions verified ex-post, risk of reversals mitigated
- **Verified:** Emission reports must be free of material misstatements, confirmed by an accredited verification body
- **Owned unambiguously:** Ownership of GHG reductions must be clear
- **Not harmful:** Negative externalities must be avoided
- **Practicality:** Project implementation barriers should be minimized



Protocol Development Goals

- Develop a standardized approach for quantifying, monitoring and verifying GHG reductions from the destruction of ozone depleting substances (ODS)
- Ensure accuracy and practicality of projects
- Where applicable, learn lessons from existing methodologies



Protocol Development Process

- For most protocols that the Reserve develops, there are analogs in the CDM methodologies
 - CDM has no ODS protocols because ODS are not Kyoto gases
- Reserve reviewed and used existing documentation where possible
 - Chicago Climate Exchange
 - Voluntary Carbon Standard
 - EOS Climate Methodology
- Reserve wants to encourage critical feedback during the public comment process



Protocol Development Process

- Internal protocol scoping
- Form multi-stakeholder workgroup
- Legal requirements and performance standard research
- Draft protocol
- Send draft through workgroup process
 - Workgroup provides technical expertise and practitioner experience
 - Periodic meetings and individual consultation when needed
- Draft protocol released for public review
- Public comments incorporated
- Protocol submitted to Reserve Board for adoption

Protocol Timeline



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| | |
|---|---------------------------|
| <i>Public Scoping Meeting</i> | <i>May 19, 2009</i> |
| <i>Workgroup process kick-off</i> | <i>August 3, 2009</i> |
| <i>Discussion paper to workgroup</i> | <i>August 5, 2009</i> |
| <i>Draft Domestic protocol to workgroup</i> | <i>September 18, 2009</i> |
| <i>Draft Imports protocol to workgroup</i> | <i>September 25, 2009</i> |
| <i>Public draft protocols released</i> | <i>November 20, 2009</i> |
| Public comment period | Nov. 20 – Dec. 18, 2009 |
| Public workshop | December 7, 2009 |
| Protocol adoption by Reserve Board | February 3, 2010 |

Workgroup



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3M

Appliance Recycling Centers of America

Caleb Management Services Ltd.

California Air Resources Board

Clean Harbors Environmental Services, Inc.

Conservation Services Group

Coolgas Inc.

DuPont Refrigerants

Environmental Credit Corp

EOS Climate

Greenhouse gas Services

Hudson Technologies Company

ICF International

NSF-ISR

Pew Center on Global Climate Change

Refrigeration Service Engineers Society

RemTec International

Ryerson, Masters & Associates

Sims Metal Management

U.S. Environmental Protection Agency

Verisae Inc

Wesco - Halon Management and Banking

World Bank



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definition:
what is an ODS project?

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">– Baseline emissions– Project emissions | Section 5 |
| Monitoring requirements | Section 6 |
| Reporting requirements | Section 7 |
| Verification guidance | Section 8 |



Background

- Ozone depleting substances (ODS) are used in a wide variety of applications
 - In addition to destroying the ozone layer, ODS are potent greenhouse gases, some greater than 10,000 GWP
- Production of ODS has been phased out, but extant stocks represent enormous potential GHG emissions
- The Reserve has identified two ODS sources from which emission reductions can be generated through ODS destruction
 - ODS refrigerants: ODS are released during operation, servicing, and disposal of equipment
 - ODS foam blowing agents: ODS are released at end-of-life treatment



Domestic and Import Protocols

- Two protocols
 - Domestic: ODS material sourced from the U.S.
 - Imports: ODS material sourced from Article 5 countries
- Allows differentiation of U.S. from international offsets
 - Different baselines in U.S. and Article 5 countries
 - Different performance standards in U.S. and Article 5 countries
 - Origin of credits may be important to buyers
- Protocols are very similar in structure and content, with primary differences in:
 - Performance standard analysis
 - Eligible ODS sources
 - Baseline and project emissions



Project Definition

“Any set of activities undertaken by a single project developer leading to the destruction of eligible ODS at a single qualifying destruction facility over a 12-month period.”

- Destruction may take place under one or more Certificates of Destruction
- Projects may be defined as less than 12 months
- Credits issued following completion of verification
- Project may verify mid-year



Project Definition

- Includes phased-out ODS for which performance standard data were available
- U.S. Protocol
 - Refrigerants
 - Foam blowing agents
- Import Protocol
 - Refrigerants
 - Foams excluded because no consistent baseline exists

| Eligible U.S.-Based Sources | |
|-----------------------------|-----------|
| Refrigerants | Foam |
| CFC-11 | CFC-11 |
| CFC-12 | CFC-12 |
| CFC-114 | HCFC-141b |
| CFC-115 | |

| Eligible Imported Sources | |
|---------------------------|------|
| Refrigerants | Foam |
| CFC-11 | N/A |
| CFC-12 | N/A |
| CFC-114 | N/A |
| CFC-115 | N/A |

Project Definition

Exclusion of Halon Destruction



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- Halons were/are used in fire suppressant applications
- For offset accounting, reductions must be *real, credible, and verifiable*
 - The Reserve must be conservative in the face of uncertainty and exclude options that cannot be verified as real
- The science related to the indirect Global Warming Potential (GWP) of halons resulting from stratospheric ozone depletion is highly uncertain
 - High positive direct GWP
 - Estimated negative indirect GWP is even higher
- *The uncertainty indicates that exclusion is conservative and that halons should not be included in an offsets protocol at this time*



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eligibility: what's in, what's out?

Eligibility Rules



| | U.S. Protocol | Imports Protocol |
|---------------------------------|--|--|
| 1. Location | <p>ODS origin: U.S. and its territories</p> <p>ODS destruction: U.S. and its territories</p> | <p>ODS origin: Article 5 countries (except Republic of Korea)</p> <p>ODS destruction: U.S. and its territories</p> |
| 2. Project Start Date | <p>Not earlier than February 3, 2008 (further restrictions presented on following slide)</p> | |
| 3. Additionality | <p>Exceed legal requirements</p> | |
| | <p>Meet performance standard</p> | |
| 4. Regulatory Compliance | <p>Compliance with all applicable laws</p> | |



Project Start Date

“...the date on which destruction activities are commenced, as documented on a Certificate of Destruction.”

- For a period of 12 months from the Effective Date of this protocol (Version 1.0), projects with start dates no more than 24 months prior to the Effective Date of this protocol are eligible
 - Projects with start dates on or after February 3, 2008 are eligible to register with the Reserve if submitted by February 3, 2011
- After February 3, 2011, projects must be submitted within 6 months of the start date



Legal Requirement Test

- Projects cannot be required by law or other legally binding mandate
- Regulatory analysis identified no existing laws or regulations that obligate ODS destruction in U.S. or Article 5 countries
- Neither the Montreal Protocol (U.S. and Imports) nor U.S. law (U.S.) requires the destruction of ODS
 - Regulations limit production and release only
- Project developers required to submit signed Attestation of Voluntary Implementation for each verification



Regulatory Compliance

- All projects must be conducted in compliance with local, state, federal, and international legal requirements
- Project developers sign an “Attestation of Regulatory Compliance” with each verification



Performance Standard – Domestic

- Reserve collected data on the quantity of ODS at end-of-life which could be recovered and/or destroyed
 - Source: EPA Vintaging Model Version VM IO file_v4.2_10.07.08
- Reserve collected data on the quantity of U.S.-sourced ODS destroyed
 - Source: ICF, *ODS Destruction in the United States of America and Abroad* (2009)
 - Adjusted to exclude Canadian imports based on private industry data

| | Total U.S. ODS Available for Destruction (kg) | | Total U.S. ODS Destroyed (kg) | | Performance Standard (Destroyed/Available) | |
|---------|---|------------|-------------------------------|--------|--|-------|
| | 2003 | 2004 | 2003 | 2004 | 2003 | 2004 |
| CFC-11 | 4,216,685 | 4,216,674 | 58,846 | 54,771 | 1.40% | 1.30% |
| CFC-12 | 12,725,841 | 10,997,307 | 23,709 | 36,753 | 0.19% | 0.33% |
| CFC-114 | 154,710 | 154,710 | 464 | 1,728 | 0.30% | 1.12% |
| CFC-115 | 1,833,654 | 2,207,326 | 4,401 | 5,027 | 0.24% | 0.23% |

- ODS destruction is not common practice in the U.S.
 - <1.5% of available ODS is destroyed

Performance Standard – Imports



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- Quantity of ODS destroyed in Article 5 countries
 - Source: UNEP, Addendum to: *Information provided by Parties in accordance with Article 7 of the Montreal Protocol on Substances that Deplete the Ozone Layer* (2009)
- Quantity of ODS consumed
 - Source: United Nations Environment Programme, Ozone Secretariat. (accessed 9/22/09). *Data Access Center*, available at: http://ozone.unep.org/Data_Reporting/Data_Access/

| Country | Destruction 2005-2008 (tonnes) | Cons. of all ODS 2005-2008 (tonnes) | Cons. Annex A, Class I 2005-2008 (tonnes) | Lower Bound (destruction/all ODS cons.) | Upper Bound (destruction/CFC cons.) |
|---|--------------------------------|-------------------------------------|---|---|-------------------------------------|
| Brazil | 23.6 | 10,662 | 3,924 | 0.22% | 0.60% |
| China | 867.3 | 49,536 | 139,278 | 1.75% | 0.62% |
| India | 0 | 25,632 | 8,974 | 0.00% | 0.00% |
| Mexico | 0.7 | 14,964 | 3,760 | 0.00% | 0.02% |
| Republic of Korea | 3,078.7 | 27,875 | 13,092 | 11.04% | 23.51% |
| South Africa | 0 | 2,991 | 92 | 0.00% | 0.00% |
| The former Yugoslav Republic of Macedonia | 0.4 | 40 | 28 | 1.01% | 1.45% |



Performance Standard – Summary

- Destruction of phased-out ODS is not common practice in the U.S., less than 1.5% is destroyed
 - Therefore, destruction of ODS sourced from U.S. is additional and eligible
- Destruction of phased-out ODS is not common practice in Article 5 countries other than the Republic of Korea
 - Therefore, destruction of ODS sourced from Article 5 countries other than the Republic of Korea is additional and eligible
 - Reserve is pursuing additional data on the destruction of ODS in the Republic of Korea



Project Crediting Period

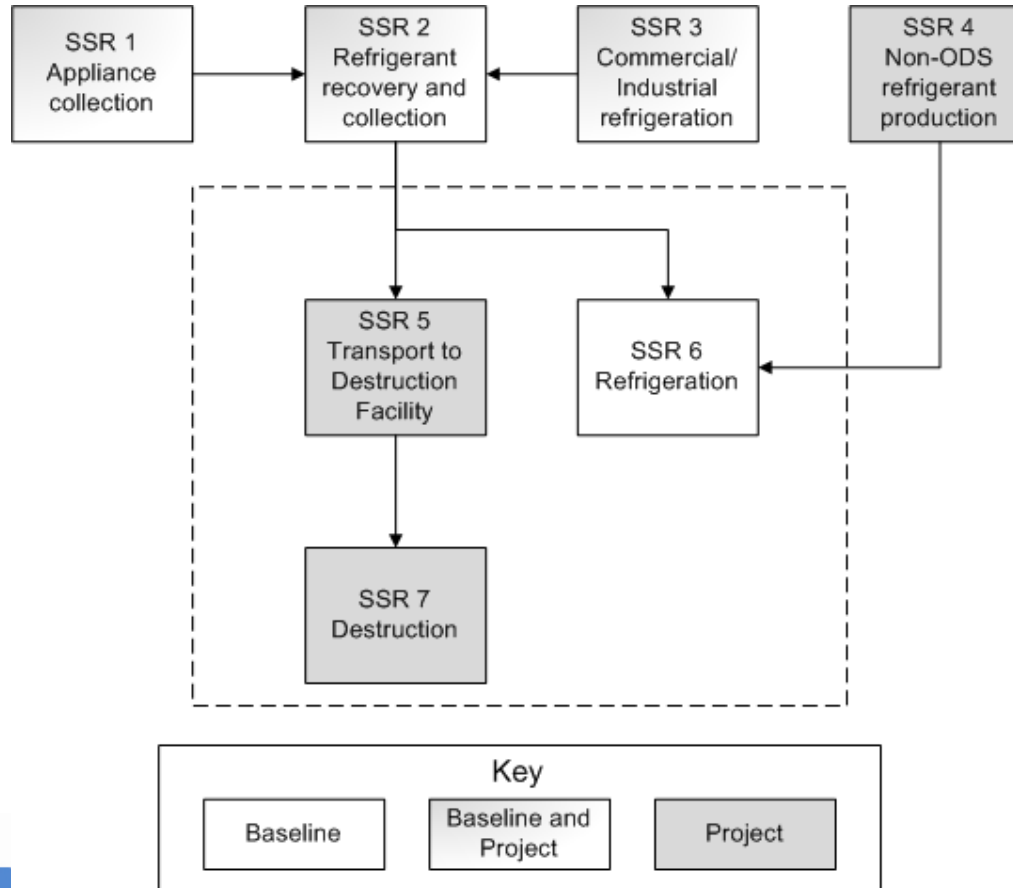
“...the period of time over which avoided emissions are quantified for the purpose of determining creditable GHG reductions.”

- Crediting period is 10 years
- ODS projects will be issued Climate Reserve Tonnes (CRTs) for the quantity of ODS that would have been released over a ten-year period following a destruction event
- CRTs are issued following successful verification of eligibility and ODS destruction
- *Emissions pathways and quantification will be discussed in regards to Baseline Calculations*

GHG Assessment Boundary: U.S. Refrigerants



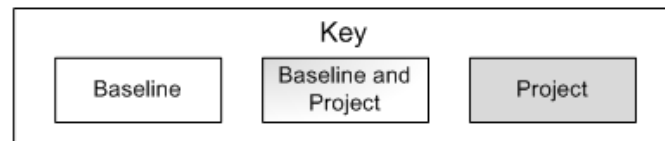
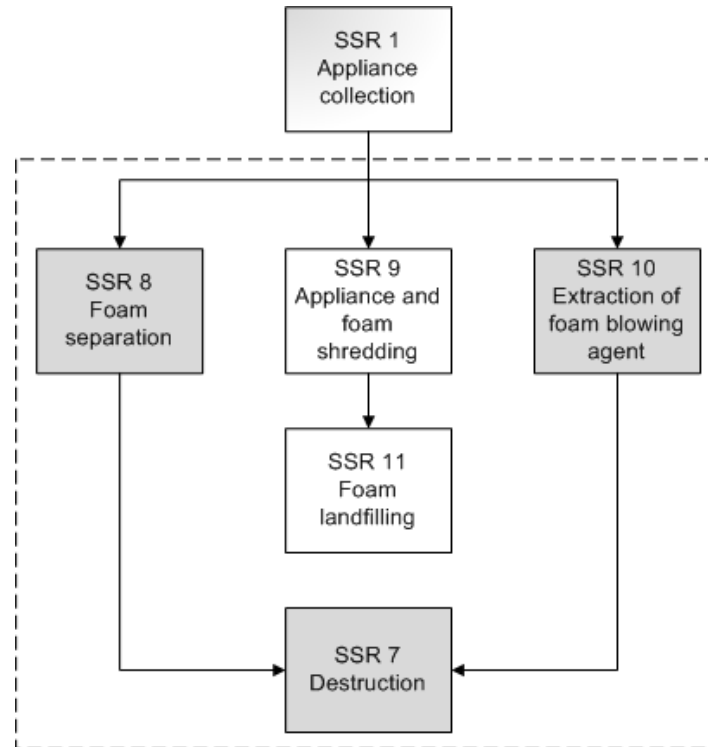
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GHG Assessment Boundary: U.S. Appliance Foams



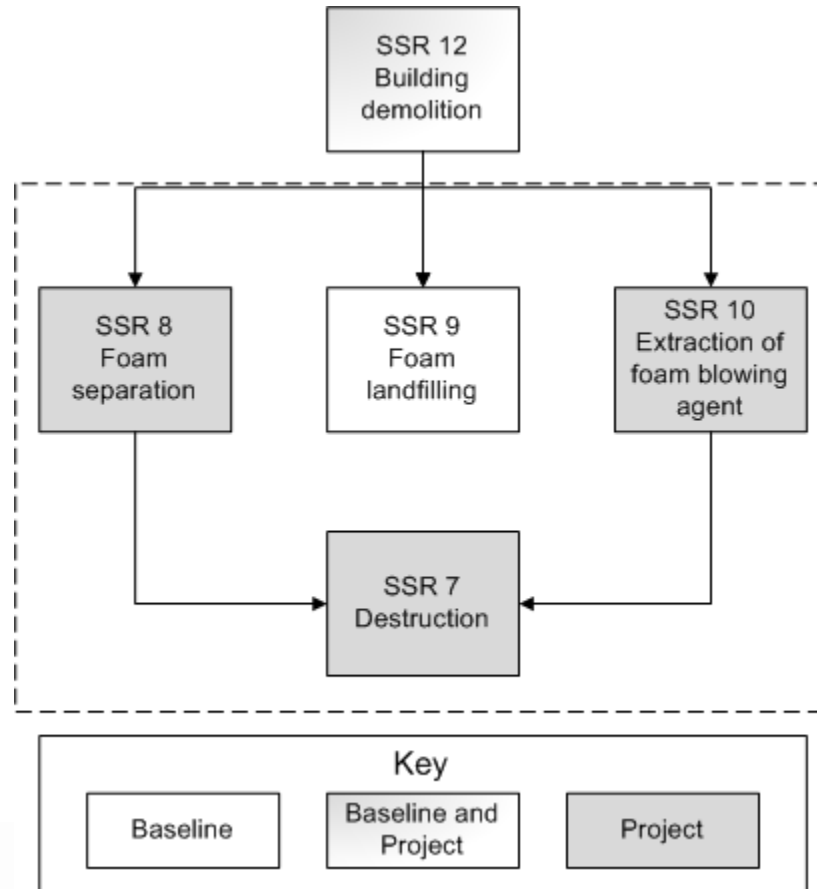
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GHG Assessment Boundary: U.S. Building Foams



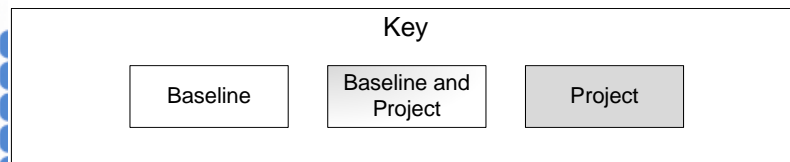
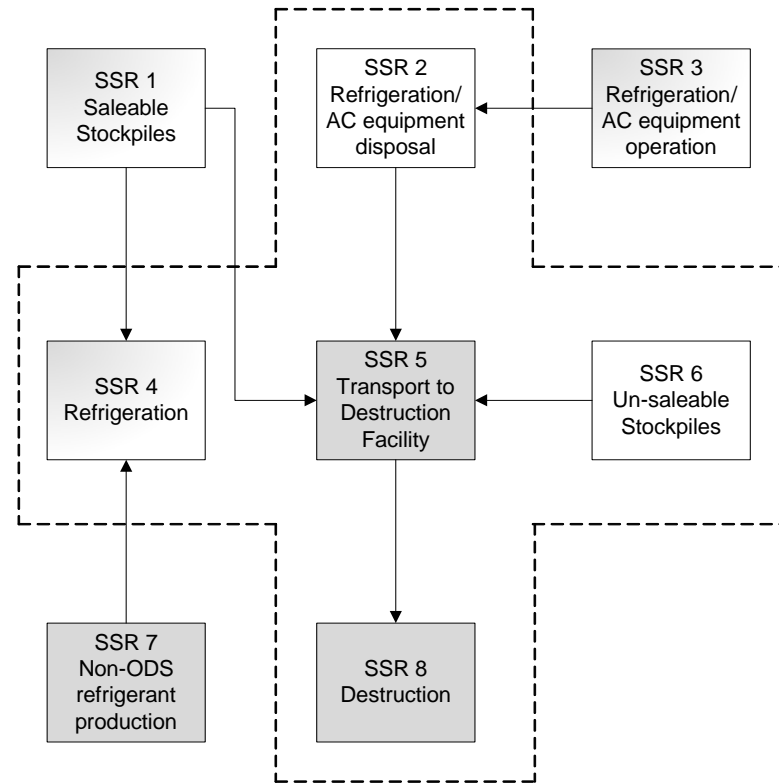
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GHG Assessment Boundary: Import Refrigerants



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BREAK – 10 minutes



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calculations: how do we count it?



Calculating Emission Reductions

“...emission reductions from an ODS project are quantified by comparing actual project emissions to baseline emissions.”

- Baseline emissions are an estimate of the GHG emissions from sources within the GHG Assessment Boundary that would have occurred in the absence of the ODS destruction project.
- Project emissions are actual GHG emissions that occur at sources within the GHG Assessment Boundary

$$ER = BE - PE$$

| <i>Where,</i> | | | <u>Units</u> |
|---------------|---|---------------------------------------|--------------------|
| ER | = | Total quantity of emission reductions | tCO ₂ e |
| BE | = | Total quantity of baseline emissions | tCO ₂ e |
| PE | = | Total quantity of project emissions | tCO ₂ e |



Baseline Emissions: Refrigerants

- Equal to the emissions that would have occurred over the ten-year crediting period had the ODS not been destroyed
 - Requires refrigerant-specific emission rate (different for domestic and imports)
 - Requires refrigerant-specific global warming potential

$$BE_{refr} = \sum_i Q_{refr,i} * (1 - (1 - ER_{refr,i})^{10}) * GWP_i$$

| Where, | | | Units |
|----------------------|---|---|--------------------------|
| BE _{,refr} | = | Total quantity of refrigerant baseline emissions | tCO ₂ e |
| Q _{,refr,i} | = | Total quantity of refrigerant ODS <i>i</i> destroyed | tODS |
| ER _{refr,i} | = | Annual emissions rate of refrigerant ODS <i>i</i> (see Table 5.1) | % |
| GWP _i | = | Global warming potential of ODS <i>i</i> | tCO ₂ e/ tODS |

Baseline Emissions: U.S. Refrigerants



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- **The Baseline Scenario:** recovery and resale into the market to recharge existing equipment
- Cannot know specific equipment that refrigerant will be used to recharge
- Using EPA Vintaging Model, Reserve has developed market-weighted average emission rate for each ODS
 - Based on emission rate for each sector in which recharge occurs

| ODS | 100-yr GWP (CO ₂ e) | Annual Weighted Average Emissions Rate (%/yr) (ER_{refr}) | 10-year Cumulative Emissions (%) |
|-----------|-----------------------------------|---|-------------------------------------|
| CFC-11 | 4,750 | 19.5% | 88.5% |
| CFC-12 | 10,900 | 26.1% | 95.2% |
| CFC-114 | 10,000 | 13.8% | 77.4% |
| CFC-115 | 7,370 | 25.0% | 94.4% |
| HCFC-141b | 725 | N/A | N/A |

Baseline Emissions – Import Refrigerants

- **The Baseline Scenario:** Reserve has defined three different baselines for imported ODS refrigerants
 - Refrigerant origin is used to determine baseline scenario
 - Emission rate is different for each baseline scenario

| Refrigerant Origin | Baseline Scenario | Applicable Emission Rate |
|---|--|--|
| 1. ODS obtained from private stockpiles or government stockpiles that can legally be sold to the refrigerant market | Use for recharge of existing refrigeration equipment | 25% ^[1] |
| 2. ODS refrigerants obtained from government stockpiles that cannot legally be sold into the refrigerant market | Continued storage | Site specific emission rate as documented (see Section 6) |
| 3. Used ODS refrigerant recovered from end-of-life equipment within the past 12 months | End-of-life release to the atmosphere | 100% |

^[1] United Nations Environment Programme, Technology and Economic Assessment Panel. (2005). *Report of the Task Force on Foam End-of-Life Issues*.



Project Emissions – Substitute Refrigerants

U.S.

- Using EPA Vintaging Model, Reserve calculated substitute emissions based on
 - Substitute market share
 - Substitute differential charge
 - Substitute emission rates

| ODS Refrigerant | Substitute Emissions (t CO ₂ e/t ODS) (SE _i) |
|-----------------|--|
| CFC-11 | 245 |
| CFC-12 | 771 |
| CFC-114 | 725 |
| CFC-115 | 1814 |

Imports

- Substitute emissions only calculated for saleable stockpiles
- Very little quantitative data on refrigerant substitutes in Article 5 countries
- Reserve relied on qualitative reports, and made conservative assumption
- Reserve will re-visit substitute emissions as new data becomes available

| ODS Substitute | Substitute Emissions |
|----------------|----------------------|
| All | 1350 |



Baseline Emissions – U.S. Foam

- Equal to the emissions that would have occurred through baseline treatment
 - Insulation foam from residential appliances: foam would have been shredded and landfilled
 - Foam recovered from building demolition: foam would have been landfilled

$$BE_{foam} = \sum_i [Q_{foam,i} * (BE_{treat,i} + BE_{landfill,i}) * GWP_i]$$

| Where, | | | Units |
|-----------------|---|--|--------------------------|
| BE_{foam} | = | Total quantity of foam blowing ODS baseline emissions | tCO ₂ e |
| BE_{treat} | = | ODS emissions from the pre-landfill treatment of foam blowing agent <i>i</i> , from shredding and compaction of foam in the baseline | % |
| $BE_{landfill}$ | = | Emissions of ODS blowing agent <i>i</i> not degraded in landfill | % |
| $Q_{foam,i}$ | = | Total quantity of foam blowing ODS <i>i</i> destroyed | tODS |
| GWP_i | = | Global warming potential of ODS <i>i</i> | tCO ₂ e/ tODS |



Baseline Emissions – U.S. Foam

- Emissions from foam end-of-life are based on current literature, and include:
 - Release of blowing agent during shredding
 - Release of blowing agent during compaction at landfill
 - Release of blowing agent in anaerobic landfill conditions
 - Degradation of blowing agent in anaerobic conditions

| Foam Blowing Agent | Percent of foam blowing agent released during shredding (set to zero for demolition debris) ^a | Percent of foam blowing agent released during compaction ^b | Percent of remaining foam blowing agent released during anaerobic conditions ^c | Percent of released foam blowing agent degraded in anaerobic landfill conditions ^c |
|--------------------|--|---|---|---|
| CFC-11 | 24% | 19% | 35% | 94% |
| CFC-12 | 24% | 19% | 41% | 60% |
| HCFC-141b | 24% | 19% | 52% | 43% |

a Scheutz, C. et al. (2007) Release of fluorocarbons from insulation foam in home appliances during shredding. J of the Air & Waste Mgmt Assn, 57: 1452-1460.

b Fredenslund, A. et al. (2005) Disposal of Refrigerators-Freezers in the U.S. : State of the Practice. Technical University of Denmark.

c Scheutz, C., et al. (2007) Attenuation of insulation foam released fluorocarbons in landfills. Environ Sci & Tech., 41:7714-7722).



Project Emissions: U.S. Foams

- Separation and handling of intact foam can result in fugitive emissions
- Protocol specifies practices to minimize ODS blowing agent losses
- Two project scenarios for foam projects:
 - Destroy building and appliance foam intact
 - Required to account for emissions that occur during separation using a default separation loss rate of 10%
 - Extract ODS blowing agent and destroy as liquid/gas



Project Emissions: Other Sources

- Other sources of project emissions
 - Emissions from fossil fuel and electricity used in destruction facility
 - ODS emissions from incomplete destruction of ODS
 - CO₂ emissions from ODS oxidation during destruction
 - Emissions from fossil fuel used in transport to destruction facility
- Protocols provide equations for calculating these project emissions
- Protocols also provide default emission factor for destruction and transportation project emissions
 - 7.5 tCO₂e/tODS for refrigerant projects and 75 tCO₂e/tODS for foam



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monitoring and operation: how do we track it?

Monitoring and Operation Requirements



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- Develop a Monitoring Plan
 - Procedures that will be followed to meet protocol requirements (e.g., Legal Requirement Test)
 - Frequency of data collection
 - Description of roles and responsibilities
 - Record-keeping plan
 - QA/QC



ODS Tracking System

- Reserve will implement tracking database to ensure no double-counting of destroyed ODS
 - Project developers enter information from certificate of destruction
 - Project verifiers confirm unique entries
- Tracking system provides added transparency and security that reductions are real and additional

Point of Origin – U.S.

- All destroyed ODS must be tracked to its point of origin
- Ensures eligibility of ODS source and accuracy of baseline
- Custody and ownership will be verified

| ODS | Defined Point of Origin |
|---|--|
| Refrigerant ODS stockpiled for greater than 24 months | Location of stockpile |
| Refrigerant ODS quantities less than 500 lbs | Location where ODS is first aggregated with other ODS to greater than 500 lbs ^b |
| Refrigerant ODS quantities greater than 500 lbs | Site of installation where ODS is removed |
| ODS extracted from foam | Facility where ODS blowing agent is extracted |
| Intact foam destroyed | Facility where foam is separated from panels |



Point of Origin – Imports

- All destroyed ODS must be tracked to its point of origin
- Ensures eligibility of ODS source and accuracy of baseline
- Custody and ownership must be verified
- Full record of U.S. EPA and/or U.S. Customs petition and import process must be verified

| ODS | Point of Origin |
|---|--|
| Virgin stockpiles | Location of stockpile |
| Used ODS stockpiled greater than 12 months | Location of stockpile |
| Used ODS quantities less than 500 lbs, and collected in the last 12 months | Location where ODS is first aggregated to greater than 500 lbs |
| Used ODS quantities greater than 500 lbs, and collected in the last 12 months | Site of installation from which ODS is removed |

Foam Collection – U.S. only

- Protocol provides guidance and requirements for two techniques
 - ODS blowing agent extracted from foam, and only ODS blowing agent destroyed
 - Intact foam containing ODS blowing agent separated from panels and destroyed intact
- Project developers must document the foam recovery process, and appliances processed
- All projects must achieve 90% RDE
 - RDE describes the proportion of blowing agent (ODS) remaining in the product before decommissioning that is recovered in the overall end-of-life management step, including ultimate destruction



Foam Collection – U.S. only

- Extracted blowing agent must be recovered as follows:
 - Extracted from the foam to a liquid/gas form prior to destruction under negative pressure to ensure that fugitive release of ODS cannot occur
 - The recovered ODS shall be collected, stored, and transported in cylinders or other hermetically sealed containers
- Intact foam and blowing agent must be recovered as follows:
 - Appliance carcass shall be cut no more than 6 times
 - Separation of foam from panels must be done by trained personnel
 - 90% of separated foam must be in pieces greater than 100 cubic inches
 - Separated foam shall be transferred to hermetically sealed containers within 15 minutes of separation
 - Foam shall be stored, transported, and destroyed while sealed inside hermetically sealed containers to ensure no release of blowing agent
 - No foam shall be shredded prior to destruction



Foam Analysis – U.S. only

- Composition of intact foam shall be determined by
 - Collecting representative sample
 - Analyzing samples using methodology in Scheutz et al. (2007) *Release of fluorocarbons from insulation foam in home appliances during shredding.*
- Composition of extracted blowing agent shall be determined by the methods provided for refrigerants



ODS Quantity

- Mass must be determined at on-site scales
 - The full weight of each container must be measured no more than 48 hours prior to commencement of the destruction process
 - The empty weight of each container must be measured no more than 48 hours after the conclusion of the destruction process
 - Mass of destroyed material is the difference between the two measurements
 - Constituent masses determined in conjunction with composition analysis results



ODS Composition

- Composition measured at AHRI lab according to AHRI 700-2006
 - Sample must be taken while ODS is in the possession of destruction company
 - Sample must be taken by a technician unaffiliated with the project developer
 - Each sample must be taken in liquid state
 - Each sample must be individually labeled and trackedCredits are only issued for the eligible ODS portion of any mixture destroyed
- Mixed refrigerants (<99% a single ODS) must undergo re-circulation
 - Ensures that no stratification of ODS or other impurities occurs
 - Circulated via closed loop in container without interior obstructions (e.g., baffles)
 - Samples taken immediately following mixing



Destruction Facility

- All ODS must be destroyed at either
 - A RCRA approved hazardous waste combustor
 - A facility which meets the guidelines provided in Appendix C (source: TEAP (2002) *Report of the Task Force on Destruction Technologies*)
- Facility must record
 - Operating parameters, including CEMS data, feed rates, and start/end times
- Destruction facility must issue a Certificate of Destruction for all ODS destroyed
- Facility must operate in full compliance with permits and regulations



Project Documentation

Required project documentation (will be made publicly available on Reserve website) includes:

- Completed Project Submittal form
- Signed Attestation of Title
- Verification Report⁺
- Verification Opinion⁺
- Signed Attestation of Regulatory Compliance⁺
- Signed Voluntary Implementation Attestation⁺

+ Submitted for each verification



Reporting and Record Keeping

- Projects must report and verify emission reductions
 - May verify as little as once per project (12 months)
 - May undergo multiple verifications to expedite credit issuance
- Detailed record keeping requirements in Section 7.3
 - Independent verification and historical documentation
 - Records to be kept by project developer for 10 years after info is generated
 - Information will not be publicly available



Verification Guidance

- Three resources containing verification guidance:
 - ODS project protocols - specific guidance in Section 8
 - General verification guidance in Verification Program Manual
 - Program Manual
- ISO-accredited verification bodies must be trained by the Reserve for this project type (dates TBA)
- Verifier required to complete NOVA/COI form to ensure no conflict of interest exists



Verification Activities

- Past protocols have had stand-alone verification protocols
- Section 8 of ODS project protocols contain guidance on verification – new Reserve format
 - Indicates areas where professional judgment may be applied
 - Provides items that all verifiers must confirm
- *This section and the questions provided do not represent a comprehensive list or plan for verification activities, but rather guidance on areas specific to ODS destruction projects that must be addressed during verification*



Verification Activities

1. Project Eligibility

- Verifier determines if a project is eligible to register with the Reserve and/or have CRTs issued for the ODS destroyed

2. Conformance with Operational Requirements and ODS Eligibility

- Verifier determines the project's conformance with the operational and monitoring requirements of this protocol, and the eligibility of discreet ODS sources

3. Quantification of GHG Emission Reductions

- Verifier determines whether there are material and/or immaterial misstatements in the project's GHG emission reduction calculations

4. Risk Assessment

- Verifier prioritizes assessment of data used in determining eligibility and quantifying GHG emission reductions

Verification Site Visits – U.S.

- At least one site visit required for each project
- Some projects may require multiple site visits

| Project | Site Visit(s) Required |
|---|---|
| Refrigerant collection and destruction: pure ODS | -Destruction Facility |
| Refrigerant collection and destruction: mixed ODS | -Destruction Facility -Mixed ODS sampling facility |
| Foam collection, blowing agent extraction, and destruction | -Facility at which blowing agent is extracted -Destruction facility |
| Foam collection, separation, and destruction of intact foam | -Facility at which foam is separated from panels -Destruction facility |

Verification Site Visits – Imports

- At least one site visit required for each project
- Some projects may require multiple site visits

| ODS Source | Site Visit(s) Required |
|--|--|
| ODS obtained from private stockpiles or government stockpiles that can legally be sold to the refrigerant market | -Destruction Facility |
| ODS refrigerants obtained from government stockpiles that cannot legally be sold into the refrigerant market | -Stockpile facility -Destruction facility |
| Used ODS refrigerant recovered from end-of-life equipment within the past 12 months | -Destruction facility |



Next Steps

- Submit written comments via Reserve webpage
 - Deadline is **5 PM PST on December 18, 2009**
 - Comments will be made public
- Individual comments received, summary of comments with responses and final protocol will be posted on Reserve webpage week of January 18, 2010
- Will be presented to Reserve Board on February 3, 2010
 - Opportunity for public comment in person or via conference call



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