

SNAP: Latest Developments on Alternatives; and Reducing Emissions

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U.S. Approaches: Smooth ODS Transition



- Tradable permit regulatory system phasing out ODS
- **Evaluate Alternatives**
 - Identifying Safer Substitutes
- ***Manage Existing Supply***
 - *Recover, Recycle, Reuse*
- ***Ensure Safe Disposal***
- ***Collaborate with Partners***



SNAP



Identifying Safer Alternatives



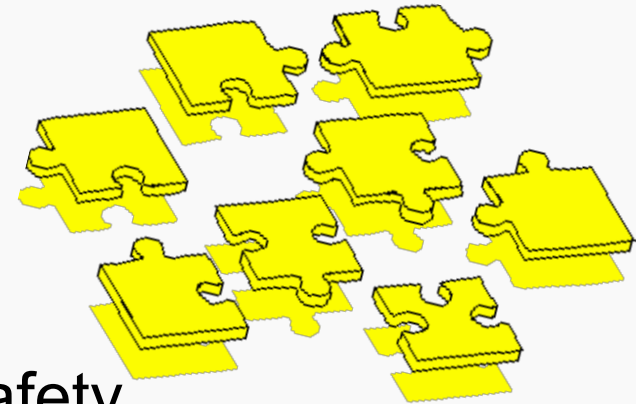
Significant New Alternatives Policy (SNAP) Program

- EPA evaluates substitutes that reduce **overall** risk to human health & environment
- Covers 8 industrial sectors:
 - Refrigeration and Air Conditioning
 - Foam Blowing
 - Cleaning Solvents
 - Fire Suppression
 - Aerosols
 - Adhesives, Coatings and Inks
 - Sterilants
 - Tobacco Expansion

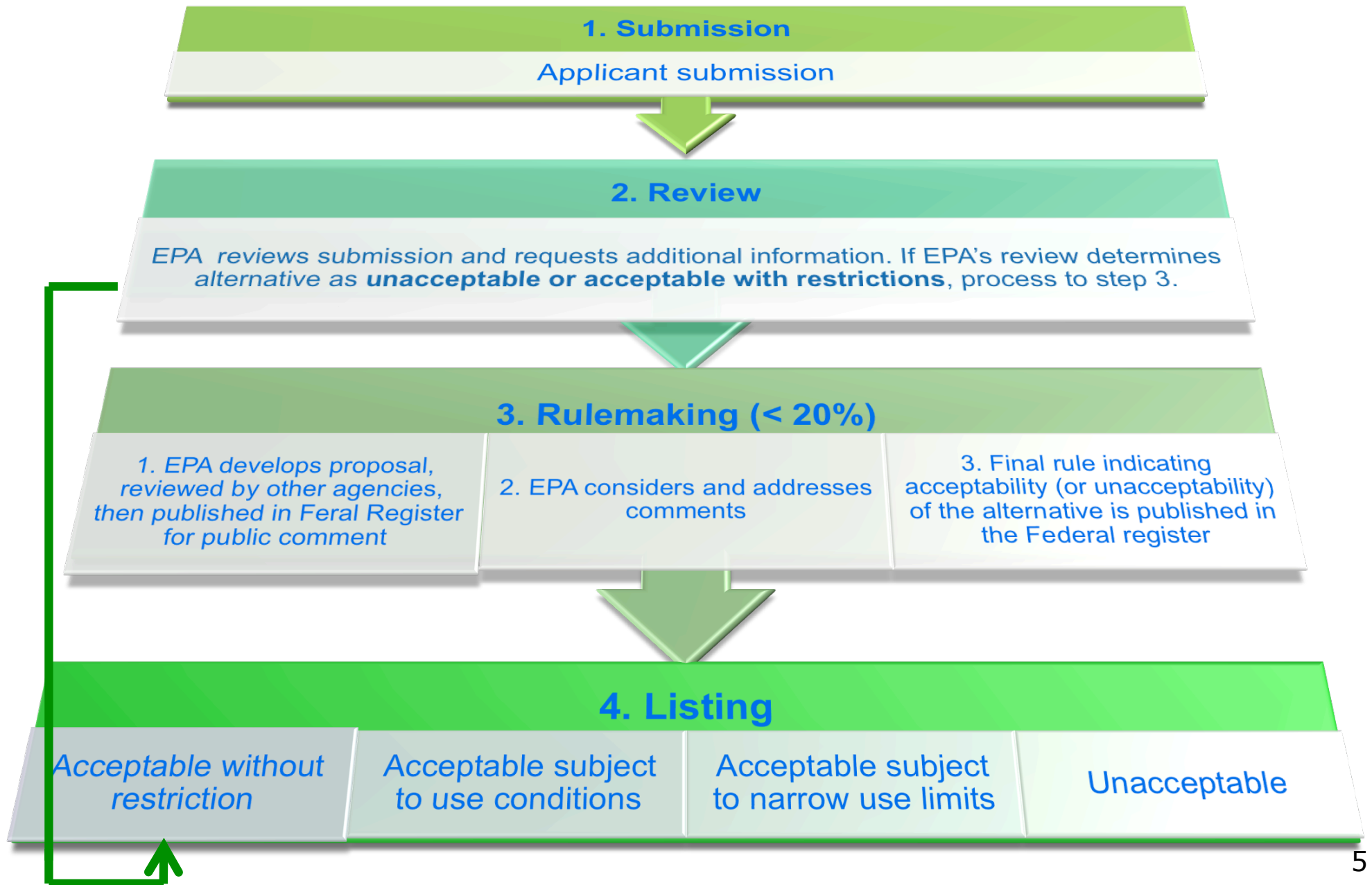
SNAP Listings



- 400+ substitutes with lower overall risks considering:
 - ODP & GWP
 - Flammability
 - Toxicity
 - Local air quality, ecosystem effects
 - Occupational & consumer health & safety
- Alternatives include both:
 - Alternative chemicals or blends; and
 - Alternative technologies (e.g., thermoelectric)
- Next Generation Alternatives
 - Alternatives for ODS & HFCs
 - Opportunities for safer alternatives



SNAP Process



How Do We Consider Factors?



Example: Toxicity and Flammability

- How toxic is the substitute and how likely is human exposure?
 - Workplace, consumer exposure
 - Compare projected exposures (typical, worst-case) to exposure limits (e.g., PEL, TLV, WEEL, RfC)
- Is there an unusual flammability hazard?
 - Compare projected exposures (typical & worst-case) to lower flammability limit
 - For flammable refrigerants, need to analyze magnitude of risks or ways of avoiding them (fault tree analysis)

2011 SNAP Actions



Listing New Alternatives:

- **March:** R-1234yf acceptable for motor vehicle A/Cs
- **October:** 9 new alternatives
 - Refrigerant blends, solvent, fire suppression
- **December:** HCs for domestic refrigeration & stand-alone commercial freezers

Other Developments:

- **February:** *found complete petition to address R-134a for light-duty MVACs*
 - *Asks EPA to consider moving R-134a from acceptable to unacceptable*

Currently SNAP Reviews



- Listed acceptable R-744 for MVACs
 - *Published June 6, 2012*
- 15-20 active reviews, more submissions expected
 - Fluorinated and non-fluorinated , some are new molecules
 - Lower GWP foam blowing agents, increased energy efficiency
- Refrigerants with lower GWPs
 - Includes HFC-32, HFOs, blends, and non-fluorinated substances (HCs and CO₂)
 - Uses include residential AC, vending machines, retail food ref, etc.
 - Opportunities to provide more options
- Anticipate new listings this summer
- *Received supplemental HFC-134a petitions*
 - *Asks EPA to consider other end-uses*
 - *Response due no later than late July*

Why is SNAP So Busy?



- Montreal Protocol Milestones Help Drive Technology
 - 2010 CFC global phaseout completed
 - 2010 developed countries reduced HCFCs to 25% of baseline
 - 2013 developing countries freeze HCFCs
 - 2015 developed countries reduce HCFCs to 10% of baseline
 - 2015 developing countries take first HCFC reduction step
- Opportunities to protect ozone layer & climate system
 - Climate friendlier solutions being developed and deployed



Manage Refrigerant Supply

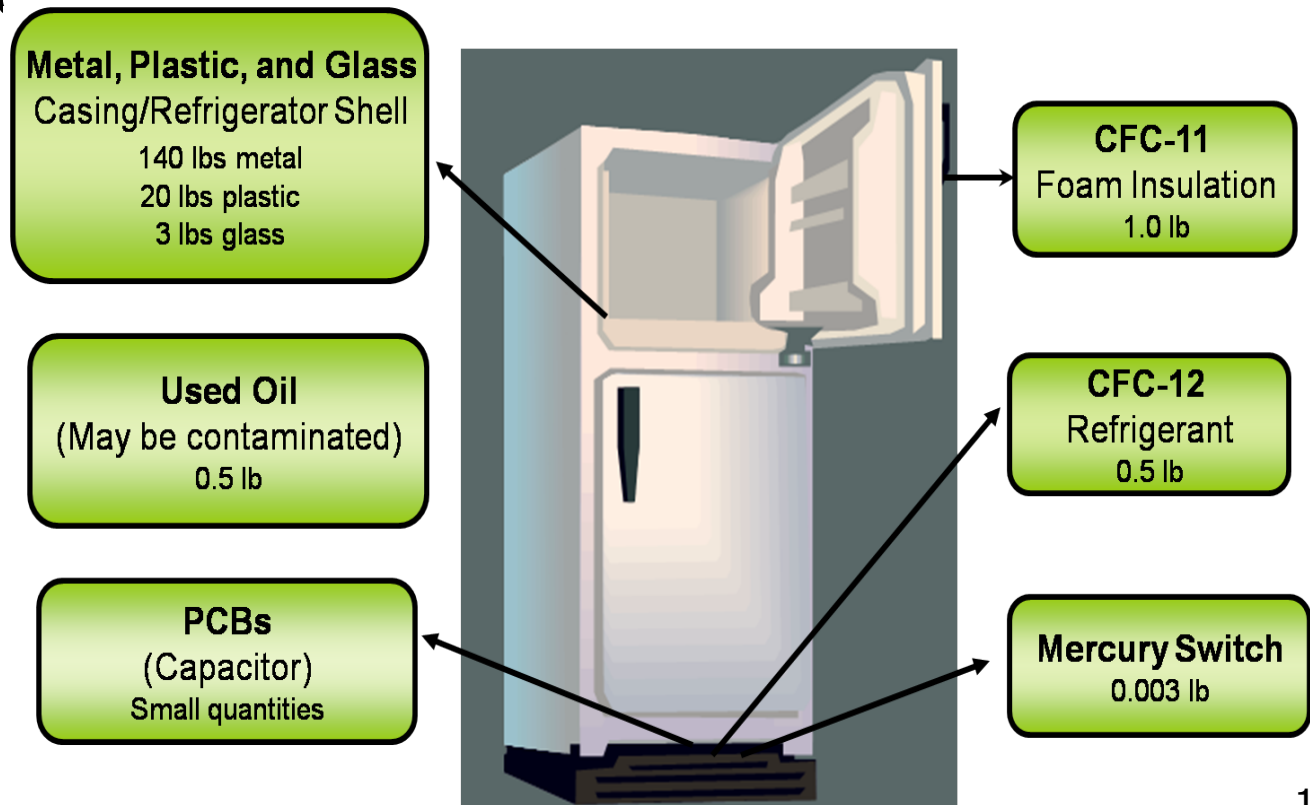


- Clean Air Act: Emissions Reduction Programs
 - Prohibits intentional releases of ODS and substitutes (HFCs)
- Establishes Service Practices for motor vehicle a/c
 - Recovery and recycling standards for HFC-134a
 - Developing servicing standards for HFO-1234yf, R-744
- Voluntary Partnerships go beyond regulations



Responsible Appliance Disposal (RAD) Program

- Builds on Safe Disposal requirements to ensure recovery from ODS foam from appliances
- Partners ensure disposal of refrigerant-containing appliances using multi-media approach and best environmental practices available
- Partners include:
 - Utilities
 - Retailers
 - Manufacturers
 - State & Local Governments





THE GREENCHILL PARTNERSHIP



What is GreenChill?

- GreenChill is EPA's partnership with food retailers to reduce refrigerant emissions and decrease their impact on the ozone layer and climate change
- We achieve this mission by providing the supermarket industry with information and assistance to:
 - Transition to refrigerants with better environmental profiles;
 - Lower refrigerant charge sizes and eliminate leaks; and
 - Adopt green refrigeration technologies and environmental best practices

Working with Partners



Advancing Ozone and Climate Friendly Technologies: Next Steps

Bangkok, July 21-22

Policy & Technology:

- Refrigeration, A/C & Foams sectors
- Non-fluorinated & fluorinated
- Reducing charge sizes, minimizing leaks, corporate responsibility

Sponsors:

- UN Environment Programme
- UN Development Programme
- United States Government
- Alliance for Responsible Atmospheric Policy
- Climate and Clean Air Coalition
- Support by European Commission



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The Alliance
for Responsible Atmospheric Policy



Final Thoughts



- U.S. Approach Combines:
 - Robust licensing system
 - Prohibitions on certain uses to decrease demand
 - Refrigerant Management: recover, recycle or reclaim, and reuse
 - Identifying Alternatives

For Additional Information



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