

SNAP Stakeholder Meeting

September 11, 2015



Welcome - Scope of Meeting

- The SNAP Program
 - Recent actions
- Near-term Roadmap and Actions Being Considered
- Discussion Questions
- Next Steps



Evaluates alternatives & lists alternatives as:

- **Acceptable** - those that reduce overall risk to human health & environment
- **Acceptable with use restrictions** - if needed to ensure safe use
- **Unacceptable**

Sectors include:

- Aerosols; Foams; Refrigeration and A/C; Solvents; Fire Suppression; Adhesives, Coatings, Inks, etc.

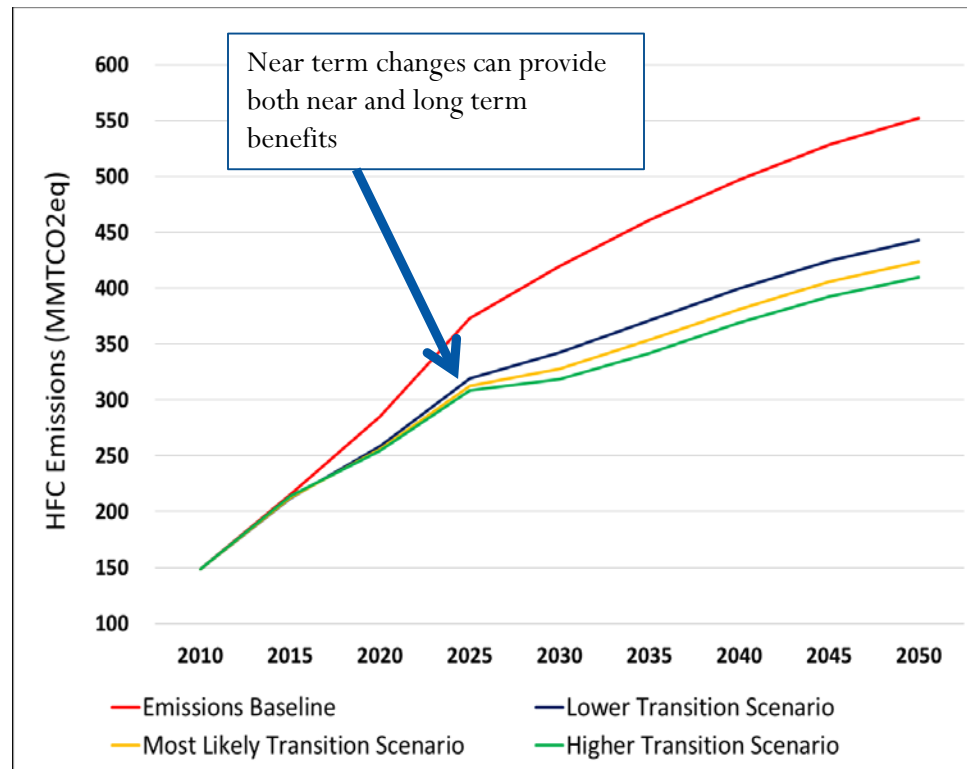
Considers:

- Ozone-Depleting Potential
- Global Warming Potential
- Flammability
- Toxicity
- Local Air Quality
- Ecosystem Effects
- Occupational & Consumer Health/Safety



SNAP Action Update

- Issued two acceptability notices adding alternatives
 - Published October 21, 2014
 - Published July 16, 2015
- Issued new rule adding five low-GWP flammable refrigerants with use conditions
 - Published April 10, 2015
- Published Status Change Rule prohibiting certain HFCs in certain end-uses
 - Published July 20, 2015
- HFC Emissions Reductions: 54-64 MMTCO₂eq in 2025



Acceptability Notices

October 2014

R-450A (HFC/HFO blend) RefAC

GWP: ~604 compared to HFC-134a: 1430

1233zd(E) heat transfer & flexible PU foams

GWP <7 compared to alternatives: 1070-4000

CO₂ refrigerated transport

GWP: 1 compared to alternatives: ~1400-4000

Methylal foam blowing end-uses

GWP <3 compared to alternatives: 725-1430

HFO-1336mzz(Z) foam blowing end-uses

GWP: ~9 compared to alternatives: 725-1430

Powdered Aerosol D fire suppression

GWP <25 compared to alternatives: 0-3500

July 2015

R-450A (HFC/HFO blend) RefAC

GWP: ~604 compared to HFC-134a: 1430

R-448A (HFC/HFO blend) RefAC

GWP: 1387 compared to R-404A: 3922

R-513A (HFC/HFO blend) RefAC

GWP: 630 compared to HFC-134a: 1430

R-449A (HFC/HFO blend) RefAC

GWP: 1397 compared to R-404A: 3922

HFO-1336mzz(Z) foam blowing end-uses

GWP: ~9 compared to HFC-245fa: 1030

MPHE RefAC, solvent cleaning aerosols and adhesives/coatings

GWP <3 compared to alternatives: 0-3500

2015 Low-GWP Refrigerants Rule

- Flammable refrigerants require use conditions with safety standards
- Approval for new equipment only

Refrigerant	GWP	End-Use and Application*					
		Household Refrigerators	Retail refrigerator stand-alone	Vending	Very Low Temp Ref	Heat Transfer	Room AC-Self-contained
Ethane	6				✓	✓	
Isobutane	8		✓	✓			
Propane	3	✓		✓			✓
R-441A (HC blend)	<5		✓	✓			✓
HFC-32	675						✓

* End-uses are in addition to those previously listed by EPA, including those listed in 2011

July 2015: Change of Status Rule

Aerosols

- HFC-125 - January 2016
- HFC-227ea & blends - July 20, 2016
- HFC-134a - July 20, 2016/January 1, 2018

Motor Vehicle Air Conditioning

- HFC-134a in New Light-Duty Systems - MY 2021
- HCFC & HFC Containing Blends in New Light-Duty Systems - MY 2017

Retail Food Refrigeration & Vending Machines

- New Supermarket Systems - January 2017
- New Remote Condensing Units - January 2018
- New Vending Machines - January 2019
- New Stand-Alone Units (small medium-temp, large medium-temp, low-temp)- January 2019/January 2020
- Retrofitted Retail Food Refrig Equipment and Vending Machines - July 20, 2016

Foams

- All End-Uses, Except Rigid PU Spray Foam- Various dates between January 2017-January 2021

Some Key Principles Guiding Our Thinking

- SNAP rules will continue to consider individual end-uses
- No across the board GWP cut offs
- No prohibition on HFCs as a whole, or in any one sector
- New HFCs or HFC blends may be listed if risk not greater than other available substitutes
- Recognition that timing is a critical dimension and that each end use has unique considerations
- Status change actions will be issued through notice and comment rulemaking

Potential Listings Proposals

- EPA seeking stakeholder input on listings that **could include:**
 - Acceptable alternatives with use conditions
 - Use conditions would mitigate risks, e.g., flammability, exposure limits
 - Fire suppression: e.g., streaming agent for aviation
 - MVAC: HFO-1234yf acceptable for Medium Duty Passenger Vans and Heavy Duty pickup trucks
 - Other refrigeration & air conditioning end-uses for flammable and highly flammable refrigerants
 - Unacceptable alternatives
 - Where risks cannot be mitigated sufficiently, e.g., flammability, toxicity, air quality impacts, climate
 - Certain HC and HC blends for stationary AC retrofits and MVAC systems

Change of Status EPA is Considering

- Change of listing status from acceptable to unacceptable
 - EPA thinking potentially later transition dates than in July 20th final rule
 - End-uses based on stakeholder comments and EPA analysis
- Sectors and end-uses where safer alternatives may be available
 - Refrigeration and A/C
 - Chillers: e.g., HFC-134a, R-407C, R-410A
 - Refrigerated food processing and dispensing: e.g., HFC-134a, R-404A, R-507A
 - Household refrigerators and freezers: e.g., HFC-134a
 - Cold storage warehouse: e.g., HFC-134a, R-407C, R-404A, R-507A
 - MVAC: HCFC/HFC blends retrofit Light Duty vehicles
 - Rigid PU spray foam: e.g., HFC-134a, HFC-245fa, HFC-365mfc, HFC-227ea, methylene chloride, formic acid
 - Fire suppression: e.g., PFCs, SF₆, HFC-23

Open Dialogue – Questions and Answers

Key Questions

- What sectors or end-uses need additional safer alternatives?
- The SNAP program continues to receive submissions across various sectors
 - Are the recently listed alternatives leading to transitions?
 - Are additional submissions anticipated (e.g., new chemicals, new blends, existing chemicals for new applications)?
- What barriers do companies face in transitioning to safer alternatives?

Key Questions

- Where a transition has been made, what benefits have you experienced from making the change?
- How can SNAP continue to help “encourage private-sector investment in low-emissions technology?”
 - A potential substitute is often submitted for approval for many end-uses. Is it helpful for EPA to move forward with listing those end-uses where we have made a determination while we are still reviewing others?
- Are there sectors EPA should explore for potential changes in status?
 - For end uses EPA or stakeholders identify - what safer alternatives are being used today?
 - Are there end-uses where safer alternatives are lacking?

Next Steps

- Continue to expand SNAP acceptable list
 - Additional alternatives under evaluation
 - Additional end-uses are being evaluated
- Continue to work with stakeholders
 - E.g., Food Cold Chain Workshop in Montreal (November)
 - Sector workshops and Stakeholder meetings
- Develop next SNAP Notice for acceptable listings
- Develop next SNAP Rule to include alternatives that are:
 - Acceptable with use conditions
 - Unacceptable
 - Change of status