

# Update on EPA Actions

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# EPA Actions Described in this Presentation

- Recent Actions
  - Exemption to the Venting Prohibition for 3 specific refrigerant substitutes
- On-going/Near Term Actions
  - Hydrochlorofluorocarbon (HCFC) Phase Out Allocations
  - President's Climate Action Plan – on Hydrofluorocarbons (HFCs)
    - International
      - Amendment Proposal to add HFCs to Montreal Protocol
    - Domestic
      - Federal procurement of alternatives to HFCs
      - Significant New Alternative Policy (SNAP) new listing regulation
      - SNAP status change regulation

# Venting Exemption for 3 Specific Refrigerant Substitutes

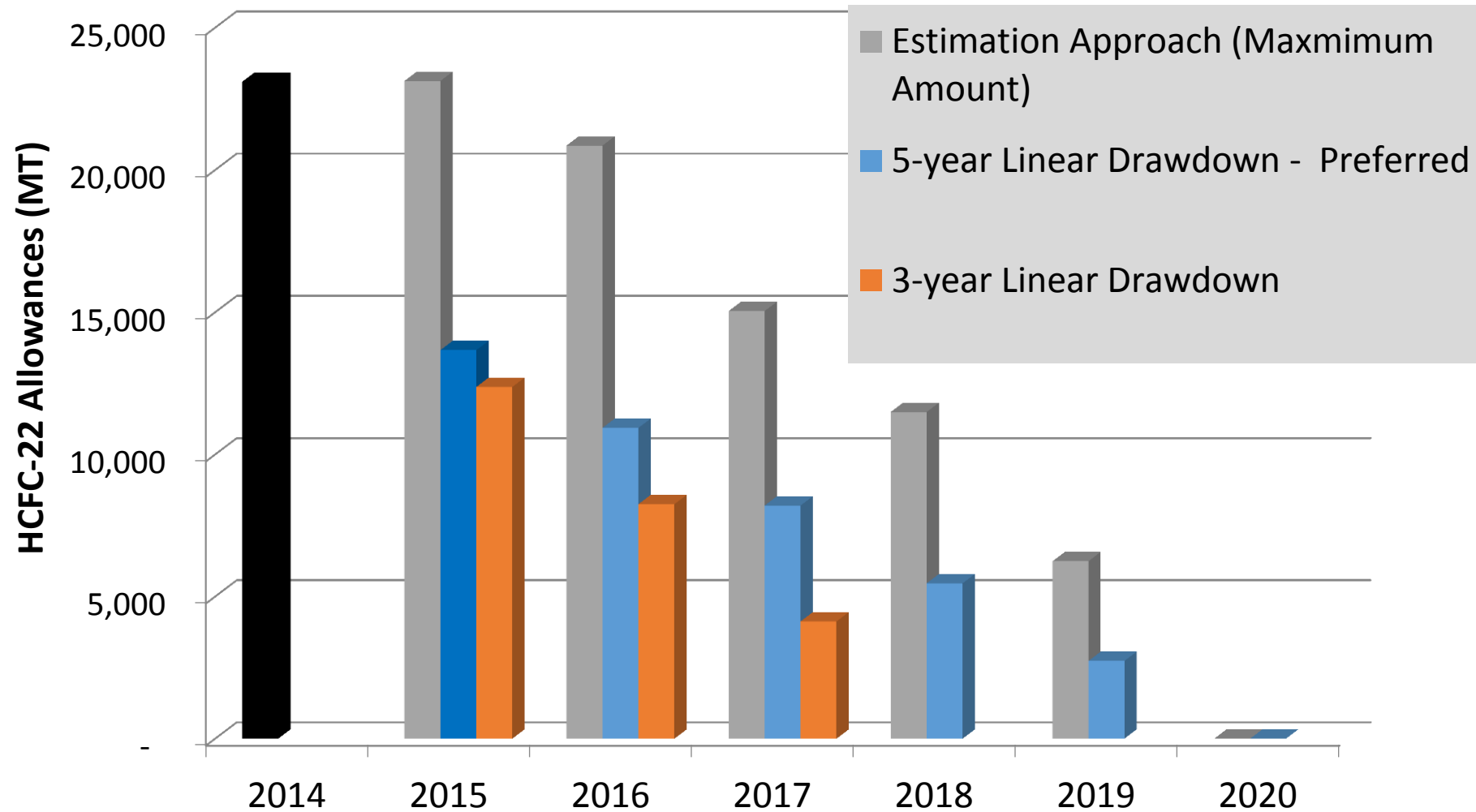
- Final Rule published 5/23/2014
- Exemption for 3 Specific HCs from the Venting Prohibition
  - Section 608 of Clean Air Act prohibits venting ODS and their substitutes during maintenance, service, repair or disposal
  - EPA determined the release of the 3 specific HCs from specific end-uses does not pose a threat to the environment
- Exemption for 3 Specific Substitutes and Their End-Uses
  - R-600A (isobutane) & R-441A: for household refrigerators & freezers & combinations
  - R-290 (propane): for retail food refrigerators and freezers (standalone units)

# HCFC-22 Phase Out Timeline & Current Status of Final HCFC Allocation Rule

- **Jan. 1, 2010:** HCFC-22 may only be produced or imported for use in servicing and maintaining pre-2010 systems
- **Jan. 1, 2015:** Allowed production/import will be at least 45% below 2010 level, as required by the Montreal Protocol
- **Jan. 1, 2020:** No production or import of HCFC-22
  - Used, recovered and recycled material may still be used
  - Virgin material imported or produced before Jan. 1, 2020 may still be used until 2030
- **Today:** Draft Final HCFC Allocation Rulemaking covering the period 2015-2020 undergoing interagency review at OMB

# Approaches for HCFC-22 Phase Out

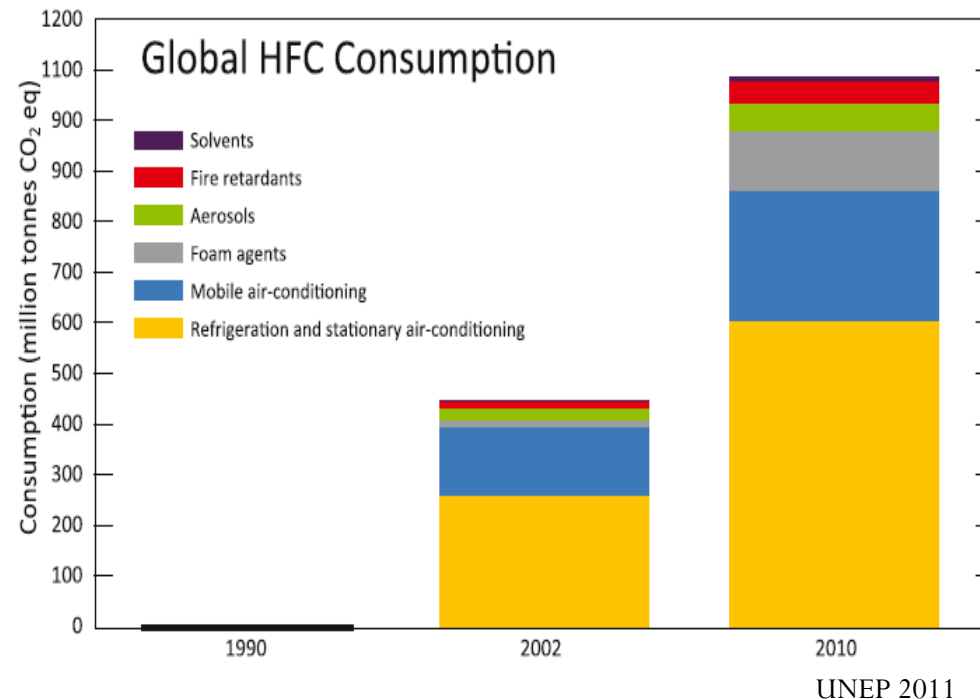
## Comparison of EPA's Three Proposals



These 3 approaches are shown in Table 1 of the Proposed Rule

# Why are HFCs a Concern?

- HFCs are synthetic fluorinated greenhouse gases (GHGs)
- Use and emissions of HFCs are growing rapidly, because they are replacement for ozone-depleting substances (ODS) being phased out under the Montreal Protocol
- Globally, 2004 to 2008 emissions increased by about 8% per year; left unchecked, emissions could rise to nearly 20% of total carbon dioxide emissions by 2050
- In the United States, emissions of HFCs are expected to double from current levels of 1.5 percent of greenhouse gas emissions to 3 percent by 2020 and triple by 2030



# What Does the President's Climate Action Plan Say about HFCs?

- Continue international diplomacy
  - Lead negotiations under the Montreal Protocol to phase down HFCs
    - Global phase down could reduce over 90 gigatons of CO<sub>2</sub>eq by 2050, equal to roughly two years worth of current global GHG emissions
  - Work with partners in the ***Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants*** to promote climate-friendly alternatives to high-GWP HFCs, address standards, and reduce emissions from HFC use
- Address through domestic actions
  - Use existing Clean Air Act authority of ***Significant New Alternatives Policy (SNAP) Program*** to approve climate-friendly chemicals, prohibit some uses of most harmful chemical alternatives
  - Provide federal leadership by ***purchasing cleaner alternatives to HFCs*** whenever feasible and by ***transitioning to equipment using safe, more sustainable alternatives***



# 2014 North American Amendment Proposal

- Proposed amendment would add HFCs to the Montreal Protocol:
  - Control HFC production and consumption
  - Create a phase *down*, not phase *out*, of HFCs
  - Control by-product emissions of HFC-23
- Why the Montreal Protocol
  - More Than 20 Years Experience With Sectors:
    - Air-conditioning, refrigeration, solvents, foams, aerosols, adhesives, coatings & inks, and fire suppression
  - Existing appropriate support structure
    - Multilateral Fund
    - Technology and Economic Assessment Panel (TEAP)
    - Science Advisory Panel (SAP)
- Cumulative Benefits of 2014 Amendment Proposal
  - Estimated range of benefits through 2050: 93,800 – 115,000 MMTCO<sub>2</sub>e

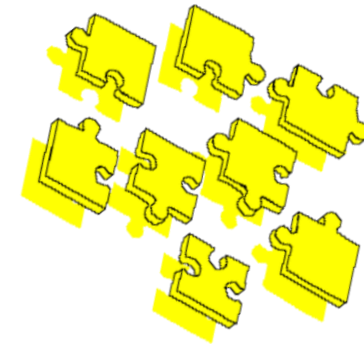


# Momentum is Building for Amendment Proposal

- In 2013:
  - Bilateral outcomes with China to work together and with other countries to address HFCs under MP
  - G-20 agreement to use institutions & expertise of MP to phase down HFCs
  - Arctic Council Declaration to use MP to phase down HFCs
  - CCAC Ministerial Communiqué endorsing MP phase down
- June 5, 2014, Brussels G-7 Summit Declaration:
  - *We will work together and with others to phase down the production and consumption of hydrofluorocarbons (HFC) under the Montreal Protocol. We will also continue to take action to promote the rapid deployment of climate-friendly and safe alternatives in motor vehicle air-conditioning and we will promote public procurement of climate-friendly HFC alternatives*

# SNAP Program

- Evaluates substitutes and list as acceptable those that reduce overall risk to human health & environment; list acceptable with use conditions if needed to ensure safe use; list as unacceptable
- Industrial sectors include:
  - Aerosols, Foams, Refrigeration and A/C, Solvents,
  - Fire Suppression, Adhesives, Coatings, Inks, etc
- Since 1994 400+ substitutes reviewed considering:
  - Ozone-Depleting Potential
  - Global Warming Potential
  - Flammability
  - Toxicity
  - Local Air Quality
  - Ecosystem Effects
  - Occupational & Consumer Health/Safety



# EPA Process to Develop Proposed SNAP Rules

- Sought deeper understanding of the range of alternatives, ongoing transitions, where & why options are limited, and more
- Engaged with stakeholders:
  - 2 large stakeholder meetings to discuss initial thinking
  - 7 sector-specific workshops
  - Numerous meetings with individual stakeholders
- Evaluated potential benefits of various options
- Developed 2 proposed rules under EPA's SNAP program:
  - First proposes to expand the list of acceptable alternatives
  - Second proposes to find certain HFCs unacceptable for specific end uses

# Principles Guiding Our Thinking for SNAP Actions

- SNAP should continue its end use by end use and chemical by chemical approach
  - No across the board GWP cut offs
  - No prohibition on HFCs as a whole, or in any one sector
- We continue to evaluate new alternatives
  - New HFCs or HFC blends may be listed if risk is not greater than other acceptable substitutes
- Recognition that timing is a critical dimension and that each end use has unique considerations
  - Consider the useful lifetimes of equipment
- SNAP benefits from the input of stakeholders
  - EPA has engaged through large stakeholder meetings, workshops and individual meetings

# SNAP Proposes to Add New Lower-GWP Refrigerants

These flammable refrigerants were recently proposed as acceptable with use conditions that adopt safety standards

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

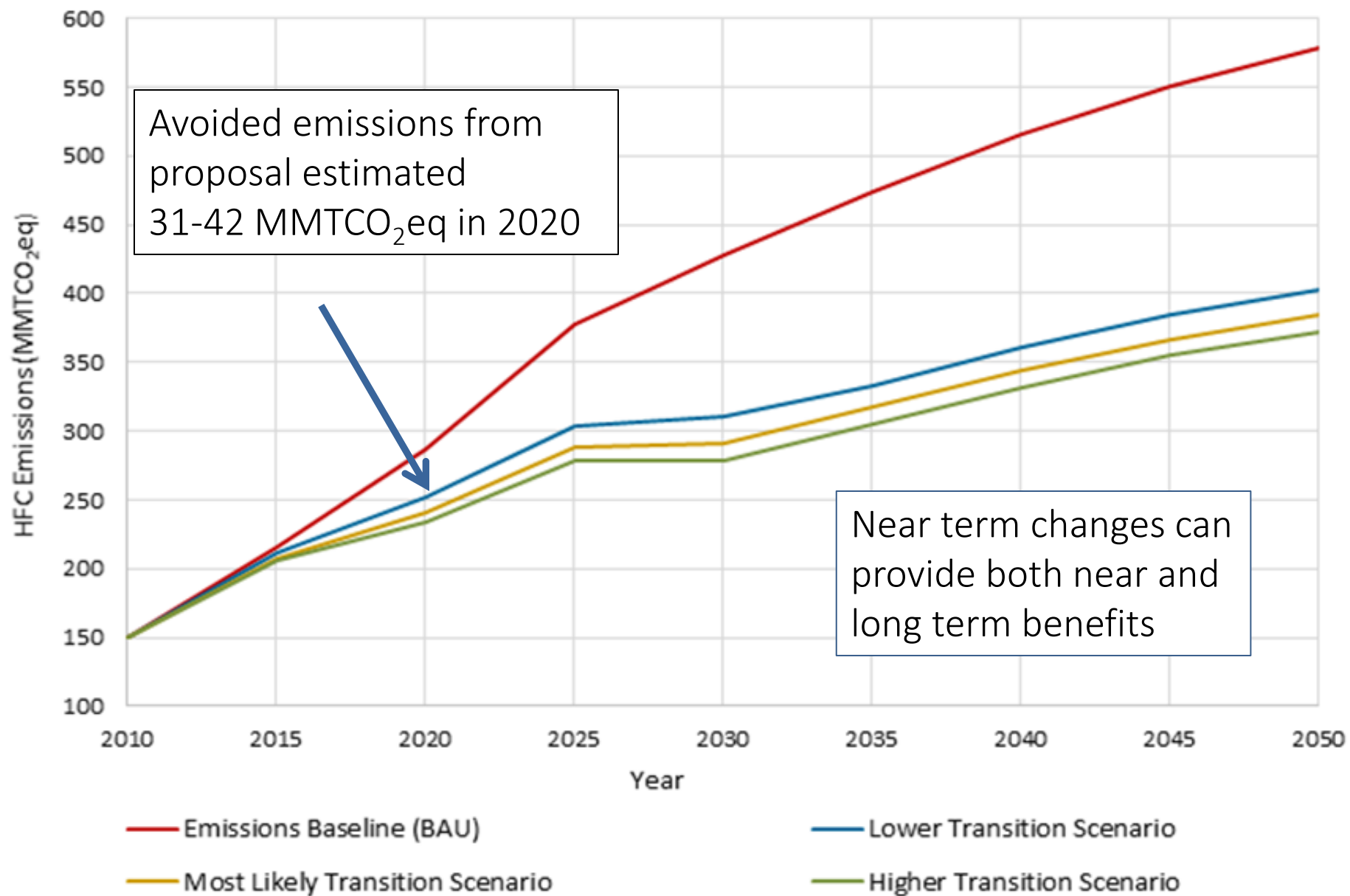
# Status Change Proposed Rule

- Proposes certain HFCs unacceptable for specific end-uses with compliance dates starting over the next few years
  - Sectors: aerosols, foams, motor vehicle air-conditioning and commercial refrigeration
  - Estimated avoided emissions: 31-42 MMTCO<sub>2</sub>eq in 2020
- Relies on same SNAP principles we have used for past 20 years:
  - Considers individual end-uses
  - Includes no across-the-board GWP cut offs
  - Does not prohibit HFCs as a whole, or in any one sector
  - Continues principle that HFCs or blends (e.g., HFC/HFO blends) may be listed for an end use if risk not greater than other available substitutes
  - Recognizes importance of timing, and that each end use has unique considerations
- Seeks comment on technical challenges: availability of alternatives, need for changes to manufacturing processes, safety upgrades, ability to meet the proposed compliance dates

# Proposed Changes to SNAP List

Change of Status Rule: END Use/ Proposed Date	Proposed Change
Aerosols <i>January 2016</i>	<ul style="list-style-type: none"> <li>• HFC-134a unacceptable except for some technical and medical aerosols including MDIs</li> <li>• HFC-125, -227ea (except MDIs) unacceptable</li> </ul>
Motor vehicle A/C <i>Model year 2021</i>	<ul style="list-style-type: none"> <li>• HFC-134a unacceptable</li> </ul>
Foams <i>January 2017</i>	<ul style="list-style-type: none"> <li>• HFC-134a and blends thereof unacceptable</li> <li>• HFC-245fa and HFC-365mfc and HFC blends unacceptable in all foam blowing end-uses except for spray foam applications</li> </ul>
Supermarket systems: remote condensing units, new & retrofits from ODS <i>January 2016</i>	<ul style="list-style-type: none"> <li>• Certain HFCs unacceptable: HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, and R-507A</li> </ul>
Stand-alone retail food refrigeration, vending machines: new <i>January 2016</i>	<ul style="list-style-type: none"> <li>• Certain HFCs unacceptable: HFC-134a, R-404A, R-407A, R-407C, R-507A, other blends</li> </ul>
Stand-alone retail food refrigeration, vending machines: retrofits from ODS <i>January 2016</i>	<ul style="list-style-type: none"> <li>• Certain HFCs unacceptable: R-404A and R-507A</li> </ul>

# HFC Emissions Reductions





# Next Steps

- Develop final regulations
  - Low GWP Refrigerants rule
    - Public comment period closes today, September 8, 2014
  - Status Change Proposed Rule
    - Published August 6, 2014
    - Public comment period closes October 6, 2014
- Continue to consider the SNAP list
  - Additional alternatives under evaluation
    - Notices and proposed rules
  - These rules should be seen as part of the series
- Engage with stakeholders



*Products shown are for illustrative purposes only; EPA does not endorse specific products.*

# *Thank You!*

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