EPA Regulatory Update
EPA Regulatory Topics

- R-22 Phaseout & Supply
- R-22 Use
- Proposed Amendments to §608 Regulations
- SNAP
- Greenhouse Gas Reporting
- Pre-Charged Appliances
- Metered Dose Inhalers
- Display Case Insulating Foam
- Possible Future Regulatory Topics?
- Chlorine in stratosphere increased steadily from 1960 & peaked at end of 20\textsuperscript{th} century
- Expected to gradually decrease through 21\textsuperscript{st} century
- End of 21\textsuperscript{st} century, ozone-depleting chemicals back to 1960 level

Source: Twenty Questions and Answers about the ozone layer: 2010 Update (Scientific Assessment of Ozone Depletion: 2010)
Environment & Health: Protection by the Ozone Layer

- Ozone layer shields Earth from ultraviolet radiation:
  - Skin cancer
  - Cataracts
  - Weakened immune systems
  - Damage to plant life, single-cell organisms, aquatic ecosystems

- Economic impacts
R-22 Phaseout & Supply

- Goal = gradually transition away from R-22
- Phaseout not meant to cause shortages in 2010 - meant to get us to zero by 2020
- Jan 1\textsuperscript{st}, 2010: decreased amount of R-22 allowed to be produced or imported for domestic use
- 2012-2014: R-22 phaseout continues with annual step-down approach
- 2015: R-22 supply will be maximum 10% of baseline
- 2020: Phaseout of all production and import of R-22
Clarification on R-22 Use in Supermarkets

- Virgin R-22 is only allowed for maintenance and repair (i.e. servicing) of existing systems

- Changes to an existing R-22 system that **expand the system (increase the cooling capacity)** are not considered regular servicing/maintenance
  - Virgin R-22 may not be used
  - Whole system must now use recovered or reclaimed R-22

- Keep detailed records of **recovered or reclaimed** R-22 used
Goals: Proposed Amendments to §608 Regulations

- Reduce use/emissions of ozone-depleting refrigerants to lowest achievable level
- Establish similar requirements for owners/operators of comfort cooling, commercial refrigeration, & industrial process refrigeration appliances
- Clarification of definitions & regulatory interpretations

- GreenChill Webinar-EPA's Proposed Amendments to the §608 Leak Repair Regulations
  - http://epa.gov/ozone/partnerships/greenchill/events.html -under Webinar Archives
Proposed Amendments to §608 Regulations

- Lowers leak repair “trigger rate” from 35% to 20%
- Requires verification & documentation of all repairs
- Requires retrofit or retirement of appliances that cannot be sufficiently repaired
- Allows for flexibility in repair or retrofit timelines
- Requires replacement of appliance components with history of failures
- Mandates recordkeeping of determination of full charge & fate of recovered refrigerant
Timing: Proposed Amendments to §608 Regulations

- Next step: respond to all public comments
- Finalize the rule
- Broader EPA review
- Broader review by other federal agencies, coordinated by the White House’s Office of Management & Budget
- Publication in Federal Register (Goal is mid 2012)
SNAP – New Refrigerants

- **Proposed Hydrocarbon Rule**
  - Allows use of R-600a (Isobutane), R-441A (HCR-188C1) in new household refrigerators & freezers
  - Allows use of R-290 (Propane) in new retail food self-contained units
  - Use conditions: equipment must meet UL standards, charge limit of 57 grams of R-600a and 150 grams of R-290, red colored ports, unique fittings

- **Final rule**
  - Intra-EPA review completed
  - Interagency review begun (< 90 days from early Sept.)
  - EPA Administrator reviews & signs rule, published
  - Final rule expected later this year / early next year
SNAP – New Refrigerants

Listing Planned for this Fall
- R-407F in retail food refrigeration, and cold storage warehouses
- Hot Shot 2 (HFC blend) in retail food refrigeration, vending machines

Under Review
- R-290/Propane in vending machines
- HFO-1234yf in retail food stand-alone units, household refrigerators & freezers, vending machines
- RS-50 in retail food refrigeration
SNAP – Not Under Review!

- Carbon Dioxide for vending machines
- HFO-1234yf for commercial rack systems
- HFO-1234yf blends for retail food refrigeration
- HFO-1234ze for retail food refrigeration
- Hydrocarbons for commercial rack systems
- R-600a/Isobutane for retail food self-contained units
- Hydrocarbons for air conditioning
Goal is to collect information on greenhouse gases to inform future policy decisions

Gathers information from the sources of 85-90% of U.S. greenhouse gas emissions

Reporting only, no control or use requirements
Subpart QQ - Imports and Exports of Fluorinated Greenhouse Gases in Pre-Charged Equipment & Insulating Foam

- Importers and/or exporters if either their total imports or their total exports of fluorinated greenhouse gases in equipment and foams is $\geq 25,000$ MTCO2e per year
- First annual report due Sept. 30, 2011
- March 31st in subsequent years
Did I import more than 25,000 MTCO$_2$e?

- How many MTCO$_2$e of fluorinated greenhouse gas refrigerant did I import inside pre-charged equipment, appliances, etc.?
- How many MTCO$_2$e of fluorinated greenhouse gases did I import in closed-cell foam (incl. inside equipment, appliances, etc.)?
Pre-Charged Appliance Rule

- Prohibits sale & distribution of
  - A/C & refrigeration appliances pre-charged with R-22
  - Components pre-charged with R-22

- Applies to appliances & components manufactured on/after 1/1/2010
  - Allowed to import a used soda vending machine containing R-22 that was manufactured prior to 1/1/10
  - Allowed to purchase a dry R-22 component to repair an existing R-22 refrigeration system
Metered-Dose Asthma Inhalers

- Epinephrine metered-dose asthma inhalers use CFC-12 as a “puffing” agent
- Sold over-the-counter as Primatene Mist
- Manufacture & sale banned as of Dec. 31, 2011 – must be removed from shelves

Useful Q&As on inhalers from U.S. Food & Drug Administration
http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm080427.htm
Display Cases & Insulating Foam

- Display cases manufactured before 2007 probably used R-22 as the foam blowing agent for insulating foam
  - At end of life, insulating foam gets shredded or degrades in landfill
  - Harms ozone layer and contributes to climate change just like R-22 refrigerant being vented

- By properly disposing of display cases & insulating foam, a typical supermarket can prevent:
  - 200 lbs. of R-22 blowing agent: 165 MTCO$_2$eq (carbon dioxide emissions from 18,000 gallons of gas)
Display Cases & Insulating Foam

- Possible rebates from power company for upgrades to more energy efficient display cases
  - Must prove energy efficiency improvements
  - Must properly destroy insulating foam

- Pilot project with Orange & Rockland Utilities
  - Have the recycler
  - Have the utility
  - Just need the supermarket!
Possible Regulatory Topics in 2012

- Revamping reclamer requirements?
- Reusable 30 lb. cylinders?
- Revamping service tech certification?
- SNAP evaluation of additional substitute refrigerants & technologies
- Finalizing rule for 2012-2014 R-22 phaseout
Calculate the climate impact of your store or company’s electricity consumption & refrigerant leaks at [www.epa.gov/greenchill](http://www.epa.gov/greenchill) (under Reports, Guidelines and Tools -> Tools and Calculators)

![Calculator: Climate Impact of Refrigerant Leaks](image)

### 1) Estimate of Refrigerant Leaks

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Refrigerant type for your store(s) commercial system:</td>
<td>R-404A</td>
</tr>
<tr>
<td>2.</td>
<td>Your store(s) commercial refrigeration charge size (in pounds):</td>
<td>3500 lbs</td>
</tr>
<tr>
<td>3.</td>
<td>Your store(s) CURRENT commercial refrigeration leak rate (in percent):</td>
<td>25%</td>
</tr>
<tr>
<td>4.</td>
<td>Your store(s) TARGET commercial refrigerant leak rate (in percent):</td>
<td>5%</td>
</tr>
</tbody>
</table>

**RESULTS**
- Annual amount of refrigerant leaks avoided (in pounds and percent):
  - 700 lbs
  - 20%
- GHS reduction from reducing refrigerant leaks (in pounds and metric tonnes of CO₂eq):
  - 2,045.329 lbs CO₂eq
  - 1.261 metric tonnes CO₂eq

### 2) Estimate of Electricity Consumption

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Your store(s) location(s) by ZIP code (For stores in multiple areas use a representative ZIP code or leave blank to use the average U.S. emission factor):</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Your store(s) CURRENT annual electricity consumption (in kilowatt hours):</td>
<td>2,300,000 kWh</td>
</tr>
<tr>
<td>3.</td>
<td>Your store(s) TARGET annual electricity reduction (in percent):</td>
<td>10%</td>
</tr>
</tbody>
</table>

**RESULTS**
- Your store(s) TARGET annual electricity consumption:
  - 2,070,000 kWh
- Annual Electricity Saved (in kilowatt hours):
  - 190,000 kWh
- GHS reduction from reduced electricity consumption (in pounds and metric tonnes of CO₂eq):
  - 290,922 lbs CO₂eq
  - 126 metric tonnes CO₂eq

### To achieve the same CO₂eq of reducing refrigerant leaks by reducing electricity consumption by:

| 700 pounds | 2,112,183 kilowatt hours |

This GHG reduction is equivalent to the annual GHG emissions of:
- 244 Passenger Vehicles
- 106 U.S. Homes

This GHG savings is equivalent to the annual GHG emissions of:
- 22 Passenger Vehicles
- 12 U.S. Homes
Calculator: Climate Impact of Refrigerant Leaks

- Uses electricity as comparison
- Average supermarket’s refrigerant leaks impact climate as much as the store’s entire annual electricity use

| To achieve the same CO₂ eq of reducing refrigerant leaks by _______ 700 pounds |
| you would have to reduce electricity consumption by _______ 2,112,183 kilowatt hours. |

| To achieve the same CO₂ eq of reducing electricity consumption by _______ 10 percent |
| you would have to reduce refrigerant leaks by _______ 2 percent. |
Financial Impact Calculator: Refrigerant Leaks

- Calculate how much product a store must sell to pay the replacement cost of leaked refrigerant.

You have to sell **19,514** gallons of milk to pay the replacement cost of **100** pounds of refrigerant.

### Table: Financial Impact Calculator - The Cost of Refrigerant Leaks*

<table>
<thead>
<tr>
<th>1) Cost to Replace Leaked Refrigerant</th>
<th>2) Income/Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Refrigerant type:</strong> R-404A</td>
<td><strong>1. Item to be sold (milk, yoghurt, hotdogs, etc.):</strong> milk</td>
</tr>
<tr>
<td><strong>2. Amount of refrigerant leaked (in pounds):</strong> 100</td>
<td><strong>2. Units (gallons, pounds, units, ounces):</strong> gallons</td>
</tr>
<tr>
<td><strong>3. CURRENT price per pound that you pay for refrigerant:</strong> $6.83 for $7.00, eqv is 7.00</td>
<td><strong>3. Sales price per unit:</strong> $3.50 for $3.50, eqv is 3.50</td>
</tr>
<tr>
<td><strong>Cost to replace leaked refrigerant:</strong> $683</td>
<td><strong>4. Profit margin per unit sold (in percent):</strong> 10.0</td>
</tr>
</tbody>
</table>

For 1%, eqv is 1; for 2.0%, eqv is 2.00;
EPA’s Retail Web Portal

- Combines all relevant EPA regulatory, compliance, & sustainability info for retailers in one place

- Go to www.epa.gov/retailindustry

- Webinar recording on EPA’s Retail Portal available under Archives at http://www.epa.gov/greenchill/events.html

- Developed together with FMI, RILA, & NRF
GreenChill’s Monthly Webinar Series

- Past GreenChill webinars available under Archives at http://www.epa.gov/greenchill/events.html

- Send email to EPA-GreenChill@stratusconsulting.com to receive invitations to GreenChill’s monthly webinars.
Best Practices Guidelines

- GreenChill Leak Prevention & Repair Guideline
- GreenChill Installation Leak Tightness Guideline
- GreenChill R-22 Retrofit Guideline

- Available at http://epa.gov/ozone/partnerships/greenchill/ptnrrresources.html
GreenChill’s Annual Environmental Achievement Awards
Best Emissions Rate

Small/Independents

Retail Chains
Most Improved Emissions Rate
Emissions Reduction Goal Achievement
Best of the Best Award
Best GreenChill Certified Store
Store Certification Excellence
Most GreenChill Certified Stores

fresh & easy
Neighborhood Market
Distinguished Partner Awards
This is the last year we will give out awards for new partners!

New GreenChill Partners
EPA Contact Information

- **R-22 Phaseout / R-22 Use**
  Luke Hall-Jordan
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  202-343-9591

- **Pre-Charged (w/R-22) Appliances**
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- **GreenChill Partnership**
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- **Greenhouse Gas Reporting Rule**
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  Rule questions: [email: GHGMRR@epa.gov]

- **SNAP Program (Alternative Refrigerants & Technologies)**
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- **Insulating Foam**
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- **§608 Regulations**
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