
Energy & Store
Development
Conference
E+SD 2011
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EPA Regulatory Update

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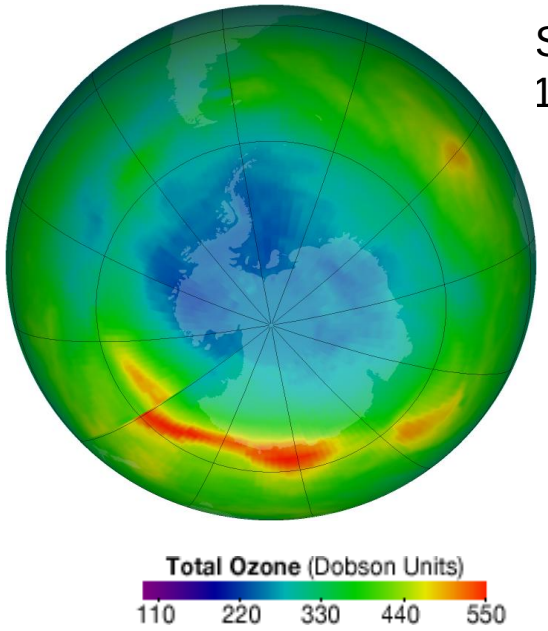
EPA Regulatory Topics

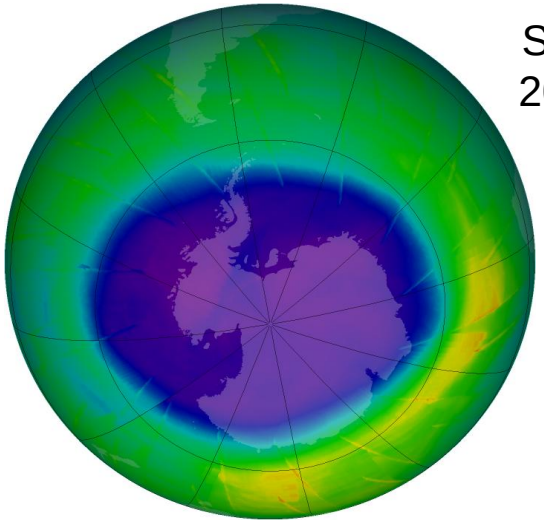
- R-22 Phaseout & Supply
- R-22 Use
- Proposed Amendments to §608 Regulations
- SNAP
- Greenhouse Gas Reporting
- Pre-Charged Appliances
- Metered Dose Inhalers
- Display Case Insulating Foam
- Possible Future Regulatory Topics?

- Chlorine in stratosphere increased steadily from 1960 & peaked at end of 20th century
- Expected to gradually decrease through 21st century
- End of 21st century, ozone-depleting chemicals back to 1960 level

Sept 1979



Sept 2009

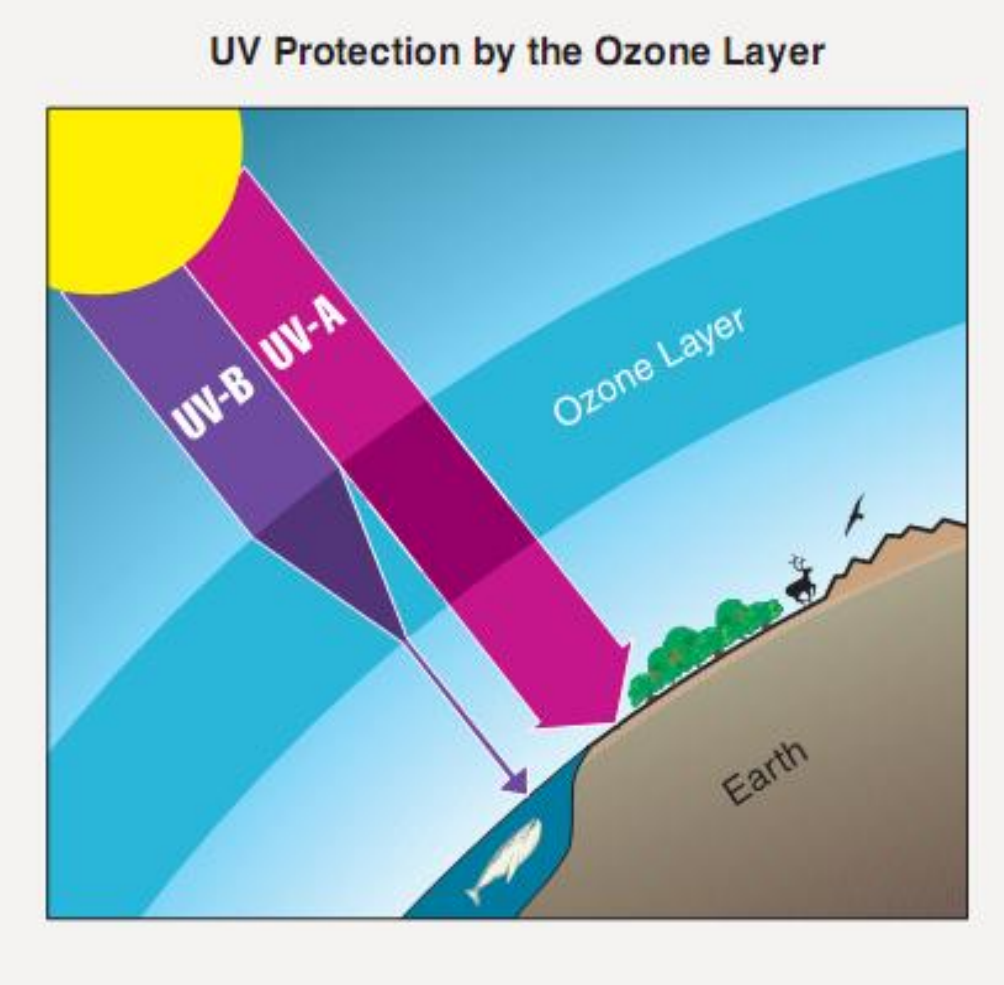


Source: Twenty Questions and Answers about the ozone layer: 2010 Update (Scientific Assessment of Ozone Depletion: 2010)

Source: NASA's Ozone Hole Watch Web Site, Sept. 2009

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 1st, 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

Greenhouse Gas Reporting Program

- 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 ≥ 25,000 MTCO2e per year
- First annual report due Sept. 30, 2011
- March 31st in subsequent years

Did I import more than 25,000 $MTCO_2e$?

- How many $MTCO_2e$ of fluorinated greenhouse gas refrigerant did I import inside *pre-charged equipment, appliances, etc.*?
- How many $MTCO_2e$ 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 $MTCO_2eq$ (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 reclaimer requirements?
- Reusable 30 lb. cylinders?
- Revamping service tech certification?
- SNAP evaluation of additional substitute refrigerants & technologies
- Finalizing rule for 2012-2014 R-22 phaseout

EPA Tools & Resources for the Supermarket Industry

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Calculator: Climate Impact of Refrigerant Leaks

Calculate the climate impact of your store or company's electricity consumption & refrigerant leaks at www.epa.gov/greenchill (under Reports, Guidelines and Tools -> Tools and Calculators)

THE GREENCHILL PARTNERSHIP

U.S. ENVIRONMENTAL PROTECTION AGENCY — GREENCHILL — ADVANCED REFRIGERATION PARTNERSHIP

Greenhouse Gas Impact Calculator for Refrigerant Leaks Compared to Electricity Consumption

1) Estimate of Refrigerant Leaks		
1. Refrigerant type for your store(s) commerical system:	R-404A	
3. Your store(s) commerical refrigeration charge size (in pounds):	3500	lbs
4. Your store(s) CURRENT commerical refrigeration leak rate (in percent):	25	%
5. Your store(s) TARGET commericial rerigerant leak rate (in percent):	5	%
RESULTS - Annual amount of refrigerant leaks avoided (in pounds and percent):	700	lbs
	20	%
RESULTS - GHG reduction from reducing refrigerant leaks (in pounds and metric tonnes of CO_2eq.):	2,745,120	lbs CO_2eq
	1,245	mt CO_2eq
To achieve the same CO_2eq of reducing refrigerant leaks by	*700*	*pounds*
you would have to reduce electricity consumption by	*2,112,183*	*kilowatt hours.*
This GHG reduction is equivalent to the annual GHG emissions of:	244	Passenger Vehicles
This GHG reduction is equivalent to the annual CO_2 emissions from energy use of:	106	U.S. Homes

2) Estimate of Electricity Consumption		
1. 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.)		
2. Your store(s) CURRENT annual electricity consumption (in kilowatt hours):	2,300,000	kWh
3. Your store(s) TARGET annual electricity reduction (in percent):	10	%
RESULTS - Your store(s) TARGET annual electricity consumption	2,070,000	kWh
RESULTS - Annual Electricity Saved (in kilowatt hours):	230,000	kWh
RESULTS - GHG reduction from reduced electricity consumption (in pounds and metric tonnes of CO_2eq.):	298,922	lbs CO_2eq
	136	mt CO_2eq
To achieve the same CO_2eq of reducing eletricity consumption by	*10*	*percent*
you would have to reduce refrigerant leaks by	*2*	*percent.*
This GHG savings is equivalent to the annual GHG emissions of:	27	Passenger Vehicles
This GHG savings is equivalent to the annual CO_2 emissions from energy use of:	12	U.S. Homes

Calculator: Climate Impact of Refrigerant Leaks

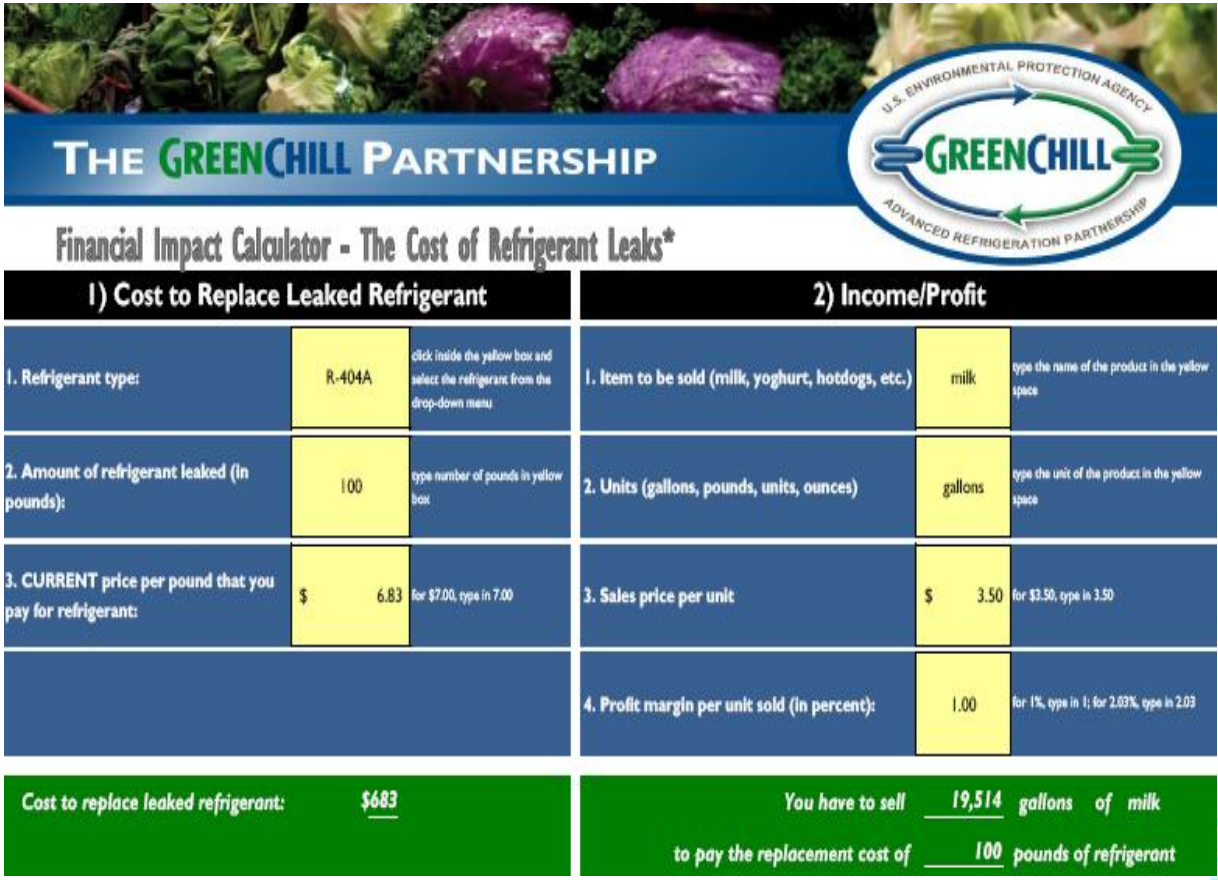
- Uses electricity as comparison
- Average supermarket's refrigerant leaks impact climate as much as the store's entire annual electricity use

To achieve the same CO_2eq of reducing refrigerant leaks by	*700 pounds*
you would have to reduce electricity consumption by	*2,112,183 kilowatt hours.*
To achieve the same CO_2eq of reducing eletricity 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



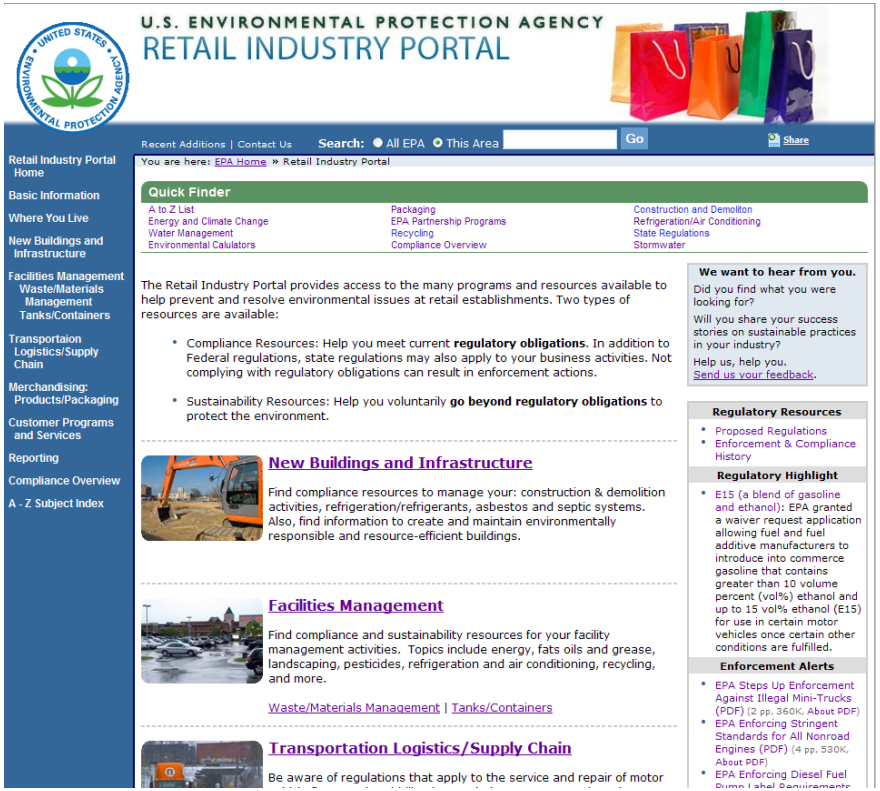
EPA's Retail Web Portal

- 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

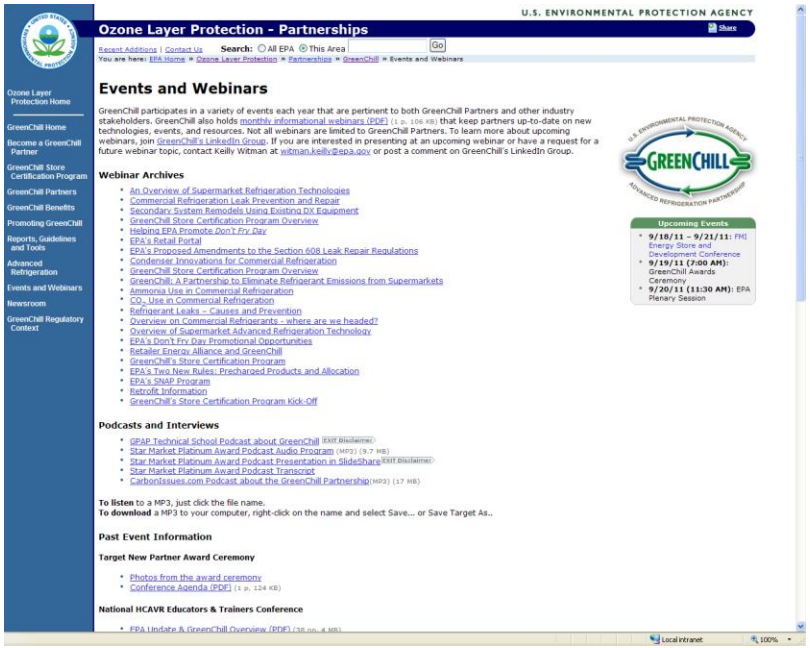
- Developed together with FMI, RILA, & NRF



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/ptnrresources.html


GreenChill’s Annual
Environmental Achievement
Awards
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Best Emissions Rate

Small/Independents

Retail Chains

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GREENCHILL

Most Improved Emissions Rate

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Emissions Reduction Goal Achievement

Raley's
Family of Fine Stores
BEL AIR NOB HILL FOODS FOOD SOURCE

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Best of the Best Award

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Most GreenChill Certified Stores

fresh & easy™
Neighborhood Market

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Distinguished Partner Awards

fresh & easy™
Neighborhood Market

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This is the last year we will give out awards for new partners!

New GreenChill Partners

Stater Bros. Markets

Down to Earth ALL VEGETARIAN Organic & Natural

BJ's Wholesale Club

Co-op Food Stores 75 Years Hanover Consumer Cooperative Society 1936–2011

Target

FMI Food Marketing Institute

U.S. Environmental Protection Agency GreenChill Advanced Refrigeration Partnership

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