

# Progress Report

2011

## **GREENCHILL**

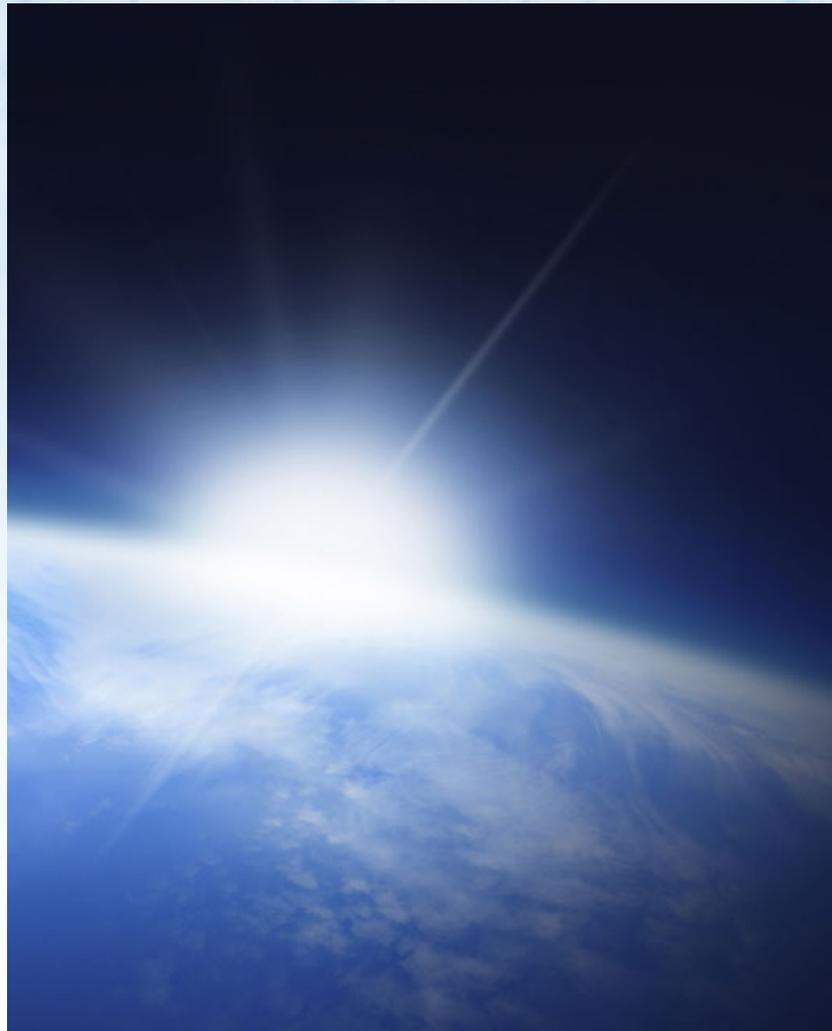
### **A PARTNERSHIP AT WORK**





“GreenChill is the ‘coolest’ program we have at EPA; the partnership has made refrigerant leaks an environmental and financial priority in the supermarket industry.”

Gina McCarthy  
Assistant Administrator  
EPA’s Office of Air and Radiation



“GreenChill is about more than just reducing refrigerant emissions; it is about preserving the ozone layer, preventing skin cancer, and ultimately saving lives.”

Sarah Dunham  
Director  
EPA’s Office of Atmospheric Programs



# GreenChill: Putting Refrigerant Emissions on Ice

Commercial refrigeration systems typically used in supermarkets leak harmful refrigerants into the atmosphere. Leaked refrigerants deplete the Earth's ozone layer and contribute to climate change.\* In fact, a typical store's refrigerant leaks have a greater effect on climate than the store's entire annual electricity consumption.

## Partners in Progress

The U.S. Environmental Protection Agency (EPA), through GreenChill, works to reduce refrigerant emissions from supermarkets and decrease the industry's impact on the ozone layer and climate change. The goals of the GreenChill Partnership are to provide supermarkets and other industry stakeholders with information and assistance to:

- Transition to environmentally friendlier refrigerants;
- Reduce the amount of refrigerant used by stores and eliminate leaks; and
- Adopt green refrigeration technologies and environmental best practices.

If supermarkets nationwide reduced the amount of refrigerant they leak to the current GreenChill Partner average, they could generate annual cost savings of over \$100 million across the industry while preventing the annual emission of about 22 million metric tons of carbon dioxide equivalent (MMT $\text{CO}_2\text{e}$ ) and 240 ozone depletion potential (ODP) tons.\*\*

GreenChill participants voluntarily go above and beyond regulatory requirements to reduce their harmful refrigerant emissions. Partners have already achieved impressive environmental results.

### GreenChill Partnership Annual Emissions Avoided

	2007	2008	2009	2010	2011
ODP Metric Tons	45	45	49	49	64
MMT $\text{CO}_2\text{e}$ (ODS & HFCs)	2.99	3.32	3.76	4.00	6.21
MMT $\text{CO}_2\text{e}$ (HFCs only)	1.53	1.85	2.15	2.38	4.12

GreenChill Partner stores emit less refrigerant that is harmful to the ozone layer and climate, as compared to typical stores. Shown in ODP metric tons (ozone layer impact) and MMT $\text{CO}_2\text{e}$  (climate impact). ODS: ozone-depleting substances. HFCs: hydrofluorocarbons.

\* Certain substances including refrigerants deplete the Earth's ozone layer, allowing more of the Sun's harmful ultraviolet (UV) radiation to reach the Earth's surface. Overexposure to UV radiation can cause skin cancer, cataracts, and immune system suppression.

\*\* This is the equivalent of taking 4.3 million passenger vehicles off the road for one year.

## A Foundation for Success

On November 27, 2007, EPA representatives and the 10 founding Partners celebrated the launch of the GreenChill Partnership. The launch event recognized Partners for their support and commitment to working with EPA to reduce their impact on the ozone layer and climate change.

Through collaboration and commitment, GreenChill Partners lay the foundation for improved environmental performance in supermarkets across the country. Working voluntarily with EPA, Partners discover the motivation, inspiration, and creativity that lead to long-term change.

“GreenChill’s accomplishment in creating a healthy relationship with EPA is invaluable. We are now working together with EPA toward common goals.”

Mark Coffin  
Vice President of Store Development  
SUPERVALU

“I believe collaboration trumps confrontation in almost every instance; by taking a realistic and collaborative approach, you can lead people into new technologies faster than you can push them.”

Raymond Hoglund  
Former Vice President  
Dover Corporation, parent company of Hill PHOENIX



*The 10 original Partners – DuPont, Food Lion, Giant Eagle, Hannaford, Harris Teeter, Hill PHOENIX, Honeywell, Kysor/Warren, Publix Super Markets, and Whole Foods Market.*

# A Growing Partnership

After just four years, GreenChill Partners make up over 20 percent of the country's supermarkets, representing almost 7,700 stores in all 50 states and Washington, DC.

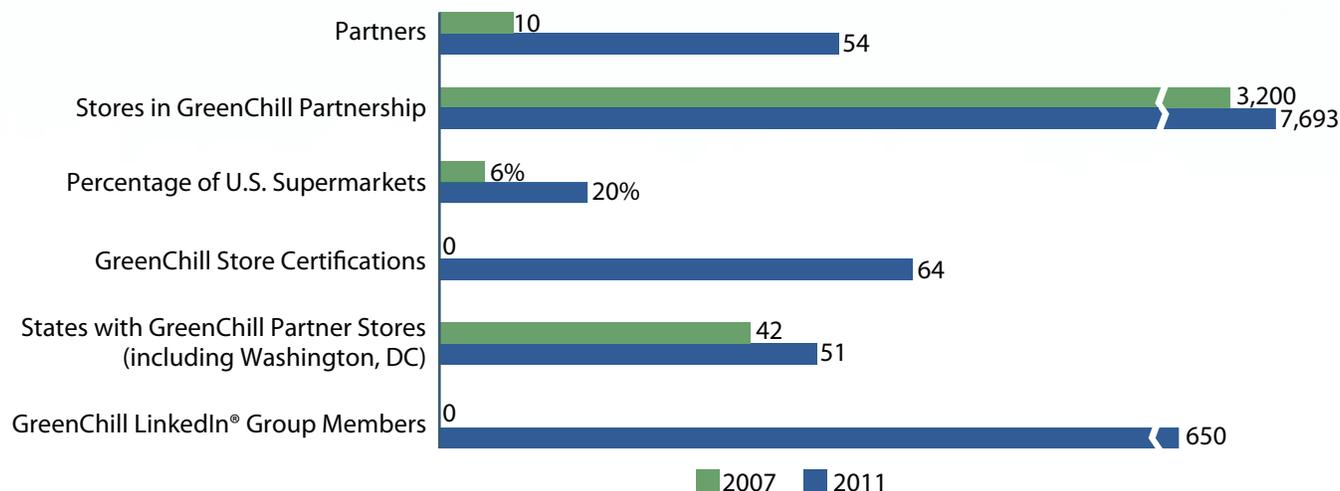
## GreenChill Partners\*

ACME Markets	Giant Eagle	Price Chopper	Stater Bros. Supermarkets
Albertsons Intermountain West	Hannaford	Publix Super Markets	SUPERVALU
Arkema	Hanover Co-op Food Stores	Raley's	Sweetbay
ARNEG	Harris Teeter	Reid's	Target
Bel Air Markets	Harveys	Shaw's/Star Market	Weis Markets
BJ's Wholesale Club	Hill PHOENIX	Shop 'n Save, St. Louis	Whole Foods Market
Bloom	Honeywell	Shoppers Food & Pharmacy	Wild by Nature
Bottom Dollar	Hornbacher's	Sprouts Farmers Market	Zero Zone
Buehler's Fresh Foods	Hussmann		
Cub Foods	Hy-Vee		
Dorothy Lane Market	ICOR International		
Dow Chemical	Jewel-Osco		
Down to Earth	King Kullen		
DuPont	Kysor/Warren		
Farm Fresh Food & Pharmacy	Lucky/Albertsons		
Food Lion	Southern California		
Food Source	McQuade's Marketplace		
Fresh & Easy Neighborhood Market	Mexichem Fluor		
	National Refrigerants		
	Nob Hill Foods		



\* Partners listed here reflect the status of GreenChill membership as of December 2011.

## GreenChill At-A-Glance: A Growing Partnership



Figures listed here reflect the status of GreenChill as of December 2011.



# Three Programs to Transform an Industry

Information, incentives, and smart business are GreenChill's cornerstones. With an eye toward reducing harmful refrigerant emissions across the supermarket industry, GreenChill focuses on three key programs:



## Corporate Emissions Reduction Program

GreenChill Partners measure their corporate-wide refrigerant emissions, set annual emissions reduction goals, and report their progress in reducing emissions to EPA every year.

## Store Certification Program

Individual stores can earn GreenChill's platinum, gold, or silver certification by achieving specific environmental performance criteria.



“The GreenChill Partnership is monumental; it is the glue that holds us together. Without GreenChill we are all just competitors.”

Wayne Rosa  
Energy and Maintenance Manager  
Food Lion

“GreenChill is the perfect mixture of everything that leads to positive change: industry and government collaboration toward a common goal, measurable objectives and recognition for achieving them, a data driven approach to solutions, and the American competitive spirit.”

Richard Heath  
Director Energy Innovations & Projects  
SUPERVALU

## Advanced Refrigeration Program

GreenChill promotes the use of green refrigeration technologies and environmental best practices to aid the industry in reducing harmful refrigerant emissions.

# Corporate Emissions Reduction Program

## Goals Set, Goals Met

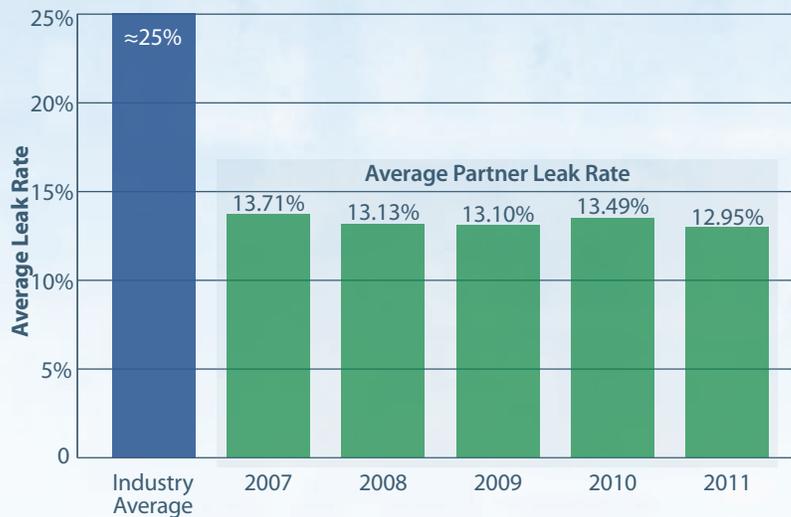
GreenChill's Supermarket Partners set annual refrigerant emissions reduction targets and work collaboratively to achieve those targets. In turn, they are leading the industry to a new standard of excellence. Tackling emissions as a corporate-wide problem enables partners to prioritize strategies that have benefits across all stores. The GreenChill Partners' collective average emissions rate is nearly half of the estimated industry average rate.

GreenChill saw a dramatic rise in the number of Partner stores from 2007-2011. At the same time, on a store-by-store basis, GreenChill Partner stores used and emitted less refrigerant over time.

"You need a measuring stick to know if you are doing well. GreenChill has helped us establish a benchmark to know what to shoot for."

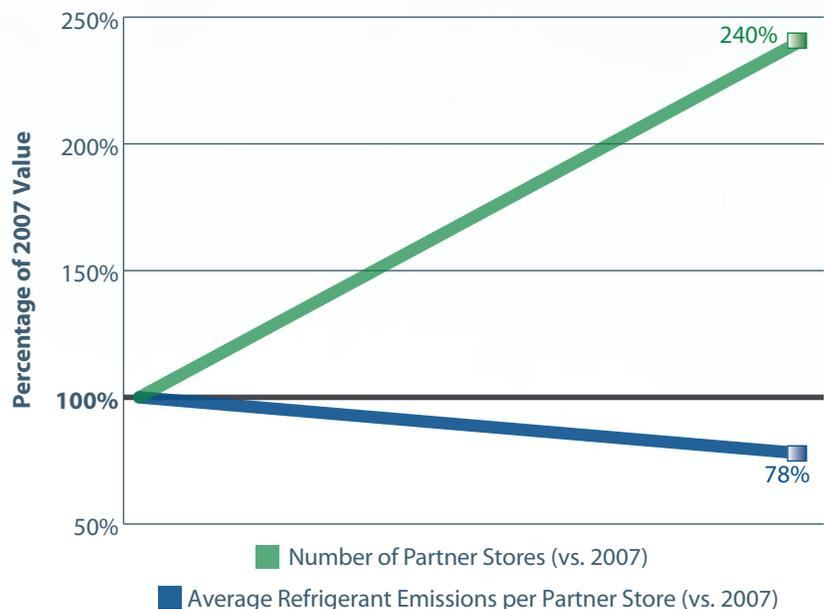
Wayne Rosa  
Energy and Maintenance Manager  
Food Lion

### Partners' Refrigerant Leak Rates Are Declining



GreenChill retailer average rate versus the industry average.

### Partnership Expansion and Emissions Reduction



Growth in number of Partner stores (+140%) and reduction in average annual Partner store emissions (-22%) from 2007 to 2011.

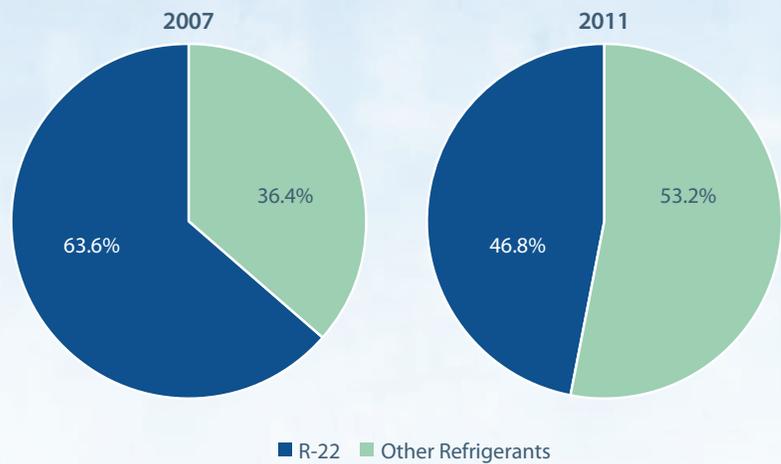
## Measuring Progress

GreenChill Partners have continually demonstrated their willingness and determination to cut refrigerant emissions. Their commitment has led to tangible cost savings and reduced damage to the ozone layer and climate.

“Reporting emissions data through GreenChill and measuring our success versus all the GreenChill benchmarks has taught us a lot about our company. GreenChill was ahead of its time in using data to identify solutions to an important environmental problem.”

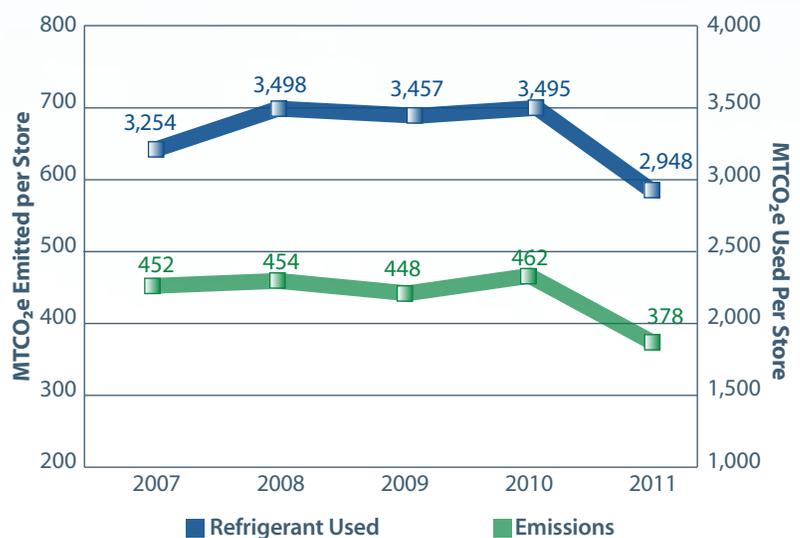
Harrison Horning  
 Director of Energy & Facility Services  
 Delhaize America, parent company of Hannaford

### Partners Shifting Away from R-22



Refrigerant use in GreenChill Partner commercial systems.

### Partners Use and Emit Less Refrigerant, Decreasing their Climate Impacts



Average refrigerant used and emitted by commercial systems of GreenChill Partner stores.

# Store Certification Program

## Leading through Design

The GreenChill Store Certification Program promotes green refrigeration technology by recognizing individual stores for using environmentally friendly commercial refrigeration systems. GreenChill Certification has become a well-known indicator of environmental performance and commitment in the supermarket industry.

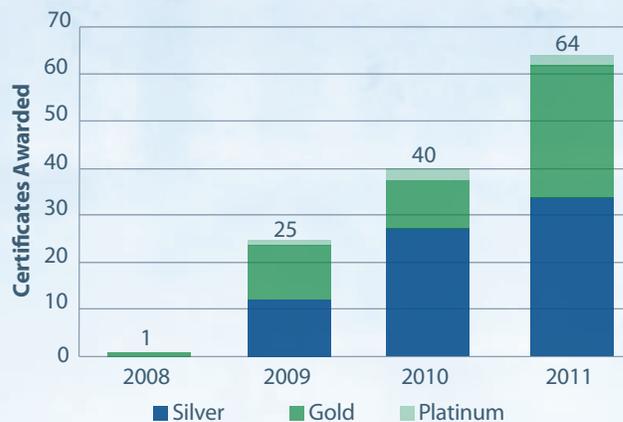


GreenChill Partner Sprouts Farmers Market opening a newly GreenChill certified store in San Diego, California.

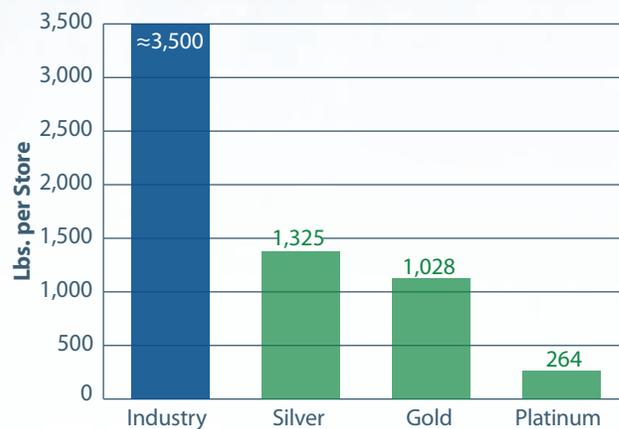
“GreenChill has strongly influenced the way Sprouts Farmers Market designs new stores. Our goal is to obtain a GreenChill certification award for every new store. We’ve lowered leak rates and reduced maintenance costs through new construction specifications based on GreenChill standards.”

Jerry Stutler  
Vice President of Construction and Facility Engineering  
Sprouts Farmers Market

### Store Certification Program Growth



### GreenChill Certified Stores Use Less Refrigerant



Amount of refrigerant used in stores for each certification level versus the industry average, up to December 2011.

## Achieving Success from the Ground Up

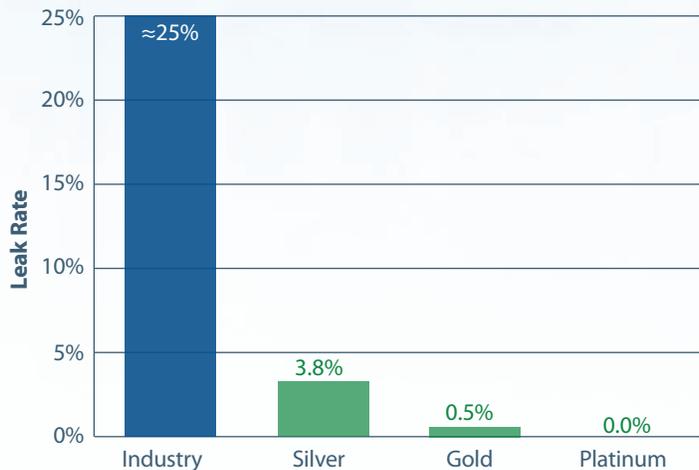
### GreenChill Store Certification:

- Honors individual stores and their employees for decreasing the environmental impact of refrigerants.
- Boosts management and staff dedication to and motivation for corporate sustainability.
- Affirms the company's refrigerant emissions reduction efforts.
- Distinguishes the store in a competitive marketplace.
- Offers opportunities for positive positioning through influential media coverage.
- Encourages leak prevention rather than leak repair.
- Brings the contributions of refrigerant management personnel to the attention of corporate officers.



*SUPERVALU, the parent company of Star Market, owns and operates the country's first platinum level certified store in Chestnut Hill, Massachusetts.*

### GreenChill Certified Stores Leak Less Refrigerant



Average amount of refrigerant leaked in stores of each certification level versus industry average, up to December 2011. Based on stores with at least 12 months of leak data.



*2009 Price Chopper store opening in Colonie, New York. In 2010, this store received platinum level certification.*

**“GreenChill certification sparked friendly competition between our regions, raising the bar across the company. The regions encourage each other to achieve tough emissions and charge size standards in stores.”**

Kathy Loftus  
Global Leader, Sustainable Engineering, Maintenance & Energy Management  
Whole Foods Market

# Advanced Refrigeration Program

## New Approaches, Superior Results

GreenChill promotes the use of green refrigeration technologies and environmental best practices to aid the industry in reducing refrigerant emissions.

### Green Refrigeration Technologies

Green refrigeration technologies are designed to reduce the two contributing factors to a store's emissions rate: the amount of refrigerant used, and the number and size of leaks.

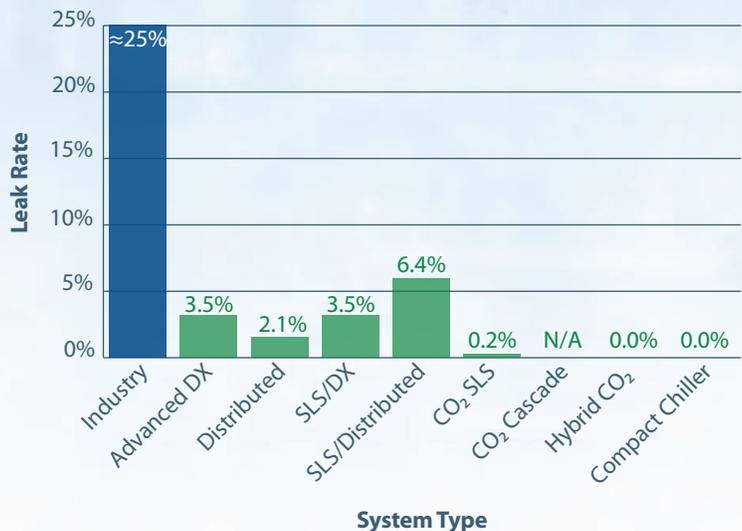
"Since the launch of GreenChill, people are arguing there is no acceptable leak rate. That's an exciting change."

Scott Martin  
Director, Sustainable Technologies  
Hill PHOENIX

"GreenChill has had a major role in creating momentum behind green refrigeration technologies. The Partnership's passion for changing the retail food industry is contagious. We have had more interest in greener systems from customers than ever before."

Travis Lumpkin  
Director Sustainability Senior Product Leader  
Hussmann Corporation

### Green Refrigeration Technologies Leak Less Than Traditional Technologies



Leak rates reported are for stores that have been operational for at least one year. SLS: secondary loop system. DX: direct expansion.



Price Chopper's Benny Smith with compact chiller units in the company's store in Colonie, New York.

## Creating a Competitive Advantage

GreenChill refrigeration fundamentally shifts a supermarket's approach to refrigeration management from leak repair to leak prevention. Companies set excellence as the baseline and continued performance as the target.

### GreenChill Environmental Best Practice Guidelines

Green refrigeration practices are procedures or maintenance practices that go above and beyond the industry norm to achieve a higher standard of system leak tightness. Best practices and guidelines are available at [www.epa.gov/greenchill/ptnrresources.html](http://www.epa.gov/greenchill/ptnrresources.html).

### GreenChill Tools

GreenChill provides tools that help identify, prevent, and solve everyday operational problems that go hand-in-hand with refrigeration management. Information-sharing forums like GreenChill webinars and roundtables help stakeholders stay up to date on best practices. More on GreenChill's monthly webinars can be found at: [www.epa.gov/greenchill/events.html](http://www.epa.gov/greenchill/events.html). GreenChill also develops tools to help stakeholders better understand the environmental impact of the refrigerants they use. The GreenChill Financial Impact Calculator is one example of this.

1) Cost to Replace Leaked Refrigerant		2) Sales/Profit	
1. Refrigerant type:	R-404A	1. Item to be sold (milk, frozen peas, hotdogs, etc.)	milk
2. Amount of refrigerant leaked (in pounds):	100	2. Units (gallons, pounds, packs, ounces, etc.)	gallons
3. Price per pound that you pay for refrigerant:	\$6.83	3. Sales price per unit	\$3.50
		4. Profit margin per unit sold (in percent):	1.00
<b>Cost to replace leaked refrigerant: \$683</b>		<b>You have to sell 19,514 gallons of milk to pay the replacement cost of 100 pounds of refrigerant</b>	

“There’s a financial incentive built into having low leak rates, improving the robustness of your system, and making a system that doesn’t need to be serviced as often.”

Sam Cantrell  
Former Mechanical Engineer  
Raley’s

GreenChill Financial Impact Calculator:  
<http://www.epa.gov/greenchill/downloads/FinancialImpactCalculator.xls>.

# Join GreenChill

Food retailers, green refrigeration systems manufacturers, and retrofit chemical manufacturers across the country are showing their commitment to environmental stewardship by joining GreenChill. Some of the numerous benefits Partners have identified include:

**Improved Operations** – Tools like the *GreenChill Best Practices Guideline: Ensuring Leak-Tight Installations of Commercial Refrigeration Equipment* help Partners identify refrigerant leaks and save money on repairs and refrigerant.

**Peer-to-Peer Communication** – Partners collaborate and network through various GreenChill forums to solve common problems.

**Recognition for Achievements** – GreenChill recognizes Partners' exemplary efforts to go above and beyond regulatory requirements.

## Partner Cooperation to Drive Industry Progress

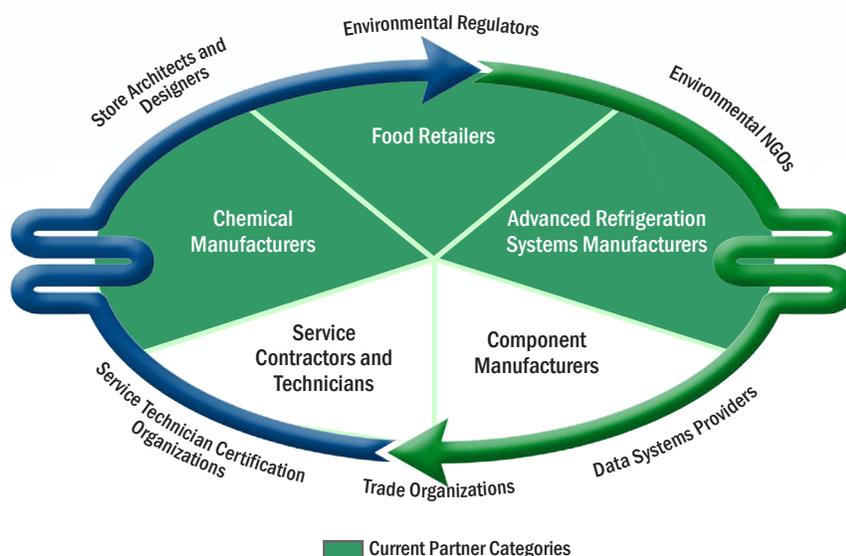
– Partners collaborate to constantly innovate, design, and push the boundaries of technology and best practices.

**Support with Public Relations** – Partners gain access to resources that help them communicate their environmental achievements to wider audiences, which can help attract new customers.

**Benchmarking** – Partners receive annual performance reports from GreenChill that evaluate their company's performance versus competitors and benchmarks .

**Assistance in Changing Mindsets** – GreenChill provides Partners with tools that help communicate the financial and environmental benefits of green technologies and environmental best practices within their companies.

## GreenChill's Stakeholders



GreenChill recognizes the important contributions all stakeholders make to reduce refrigerant emissions. We welcome their support and are pleased to know that these stakeholders are working with our Partners to achieve success.



# Connect with GreenChill

## Visit the GreenChill Web Site

Find Partnership news, tips, resources, and more at [www.epa.gov/greenchill](http://www.epa.gov/greenchill).

## Participate in GreenChill Events

See a schedule of upcoming events and browse the past events archives at [www.epa.gov/greenchill/events.html](http://www.epa.gov/greenchill/events.html).

## Join the GreenChill LinkedIn® Group

GreenChill LinkedIn® Group membership is open to anyone affiliated with the retail food industry or relevant sustainability initiatives. Members share their expertise, network with industry colleagues, and learn the latest about GreenChill activities at <http://tinyurl.com/greenchill>.

## Follow GreenChill on Twitter

Receive the latest GreenChill news and information at <http://twitter.com/EPAgreenchill>.

## Contact GreenChill

For questions and answers regarding the GreenChill Partnership, please contact:

Keilly Witman, Program Manager, GreenChill  
e-mail: [witman.keilly@epa.gov](mailto:witman.keilly@epa.gov)

“GreenChill has proven time and again that supermarkets can achieve what was thought to be impossible just three years ago. When you ask GreenChill Partners how they did it, the answer boils down to ‘we tried!’”

Keilly Witman  
Program Manager  
EPA’s GreenChill Partnership

U.S. Environmental Protection Agency  
Stratospheric Protection Division  
EPA-430/R-12-005  
<http://www.epa.gov/greenhill>  
September 2012



Printed on 100% recycled/recyclable paper with a minimum 50% post-consumer waste using vegetable-based inks.