



ATMO
sphere

Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach

- Director of Sustainable Store Planning/Refrigeration
- Grocery Outlet 14+ years
- Over 300 stores executed
- 32+ years of Grocery/ Retail Experience
- Store Planning/ Refrigeration/ Energy Management



Grocery Outlet – Who are we?



- Extreme value retailer
- Independent Owner/ Operator Model
- Founded in 1946 by Jim Read
- 300 stores currently
- Primarily West coast (14 East coast stores)
- Corporate builds stores, IO's operate them
- Balance efficiency with first cost
- Commitment to efficiency
- 12 to 20K total foot print



Grocery Outlet – Eco Frugal



How Grocery Outlet incorporates sustainability into its store design

Grocery Outlet Eco-Frugal

Grocery Outlet is committed to providing our customers with the best deals on groceries by taking advantage of energy efficient strategies that lower operating costs for our national network of independently operated neighborhood grocery stores.

We use **energy efficient measures** in this store which saves annual energy equivalent to:



Powering
12 Homes



Driving 274,073 miles in an
average passenger vehicle



Switching 4,054
incandescent
light bulbs to LED

This Saves **YOU** Money!



Commitment to Reduction of our Carbon Footprint



Energy Efficiency Results- All Stores

Annual CO ₂ emissions reduction equivalent to:		Energy Savings Per Year (kWh):	
		Per Store	All Stores
Powering 1,996 homes	Burning 2.1 million gallons of gas	162,721 kw/h	26,999,539 kw/h

Grocery Outlet 1st Green Chill store 2018

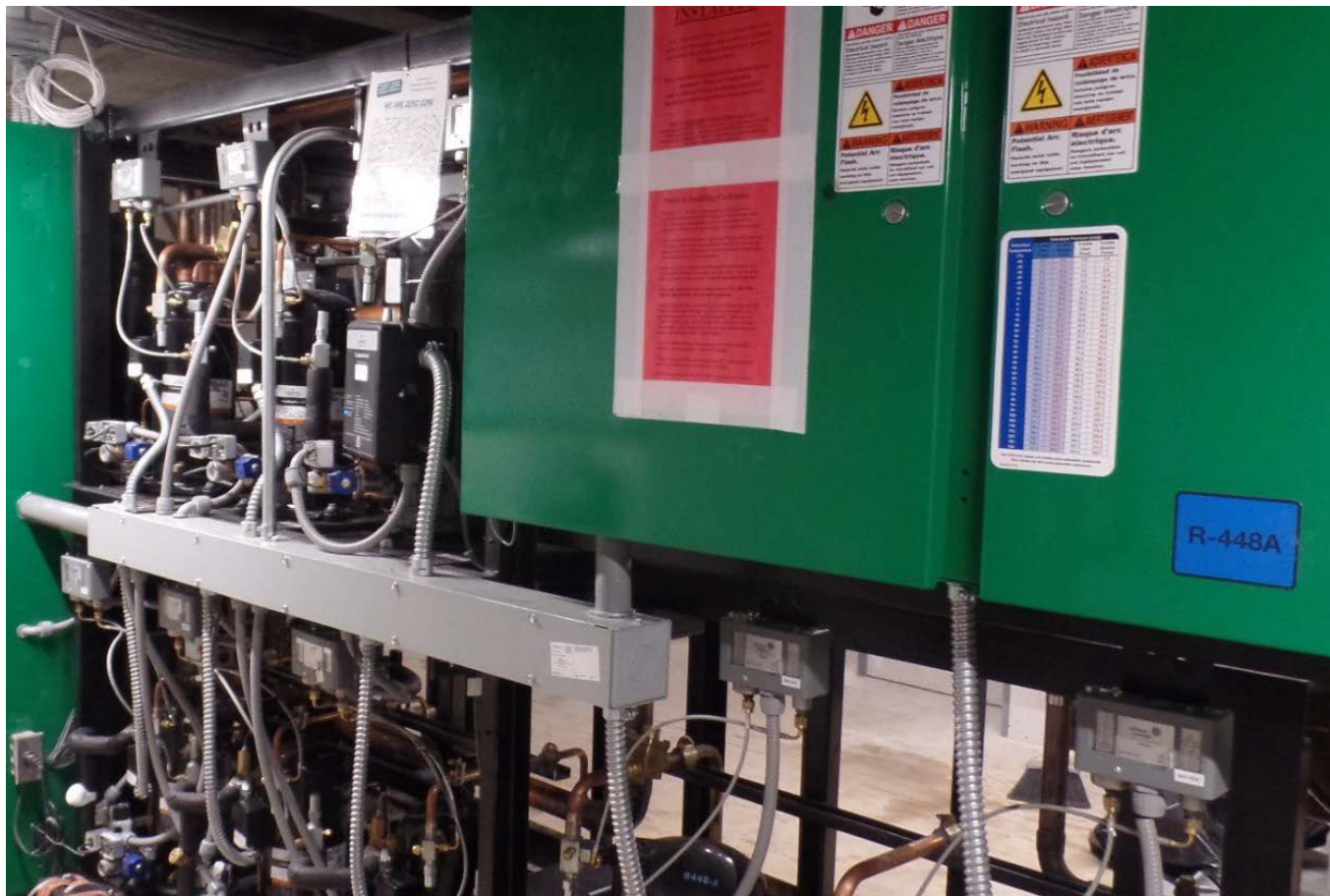


Downtown Los Angeles



Downtown Los Angeles – our first Green Chill store

- Grocery Outlet uses very HFO Blend refrigerants in our refrigeration systems to reduce potential for global warming
- R448A (GWP = 1273)





Reducing our Carbon Footprint



Efficient Measures :

- Green Chill
- Central air handler
- Heat reclaim
- LED lighting
- Day light harvesting
- Energy management systems

Sustainable Measures at Grocery Outlet: LED Lighting

- All new stores are equipped with Dimmable LEDs

LED lighting system eliminates 70-100 tons of CO₂ emissions annually



Our lighting system far exceeds California state requirements for energy efficiency ,
uses up to 70% less of the power of an equivalent Fluorescent lighting system



Planning for the future in California

- California is running short of GW goals
- Plan test in 2020
- We expect 150 GWP requirement in 2022
- As goes California...



Our Challenges to use of natural refrigerants

- Capex increases
- Lack of incentives
- Remote locations/ technicians
- Power variations



- Capex

- 2017 Title 24 changes drove Capex UP
- Higher costs for CO2
- Look to test in 2020
- Planning for 2022



Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach



- Lack of incentives from Utilities
-

- Need incentives from state/
utilities to help offset higher costs



- Refrigeration technicians/Remote locations

- Critical need in Northern California
- Cant find techs to work on DX, how will find tech to work on CO2?
- Lots of windshield time
- Sales/ product loss
- Long lead time for parts



- Power variations

- Rural locations
- Voltage drops
- Frequent phase loss
- Power quality



Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach

Grocery Outlet- Eco- Frugal, Eco Smart



Total impact of our Sustainable measures – All Stores (2017)

Energy Savings Per Year (kWh)		CO2 equivalent (CO2e)		CO2 equivalent (CO2e)	
kWh/store	kWh total	metric tons/store	metric tons total	Pounds/store	Pounds total
68,902	1,977,349	48.80	10,605.00	106,754.00	23,379,064.00
34,527	-	39.90	6,342.00	87,937.00	13,981,880.00
47	3,580,268	0.03	2.50	72.80	5,593.00
22,200	1,914,296	15.60	1,279.00	34,396.00	2,820,447.00
14,815	-	10.40	666.00	22,954.00	1,469,037.00
140,491	7,471,913	115	18,895	252,114	41,656,021



Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach



- Conclusions

- California running behind statutory goals.
- 150 GWP Limit will hit in 2022
- Micro distributed will ultimately be the solution for retailers.
- Low temp is challenge
- Lobby for charge limit increase
- 12 Ft cases are Critical



ATMO
sphere

Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach