

Richard Heath

Director

Energy Innovations & Projects



SUPERVALU GreenChill Certified Locations:

Albertsons 6355

Shaw's 7645

Cub Foods 4973

Jewel 3187

Albertsons 6781

Jewel 3632

Shaw's 7695

– Carpinteria, CA

– Chestnut Hill, MA

– St. Paul, MN

– Chicago, IL

– San Diego, CA

– Chicago, IL

– Peterborough, NH

Platinum Plus (1st all Natural)

Platinum (GreenChill's 1st)

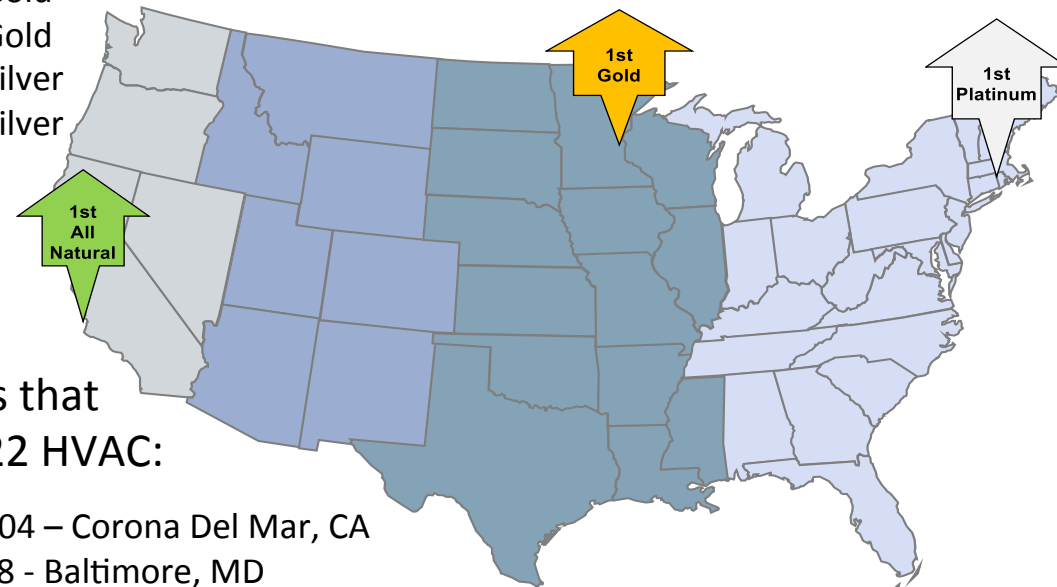
Gold (GreenChill's 1st)

Gold

Gold

Silver

Silver



Other Reduced Charge Remodel Projects that would qualify were it not for existing R-22 HVAC:

Shaw's 7512 – North Hampton, NH

Jewel 3405 – Gurnee, IL

Albertsons 577 – Klamath Falls, OR

Albertsons 6504 – Corona Del Mar, CA

Shoppers 2288 - Baltimore, MD

Shoppers 2337 – Burke, VA



Simon Bérubé, P. Eng.

Senior Director Engineering



- **Start up of transition toward natural refrigerants in 2006.**
- **Warehouses completed projects**
 - 1 Ammonia / glycol
 - 1 Ammonia / CO²
 - 4 Ammonia
 - 3 HFC
- **Supermarket completed projects**
 - 1 Syltherm / glycol
 - 2 CO² / glycol / R507
 - 4 CO² / R507
 - 1 CO² / R407a
 - 1 CO² / R134
 - 28 Transcritical System



ATMO the Business Case
sphere natural refrigerants

June 12-13 2012 | Washington DC



Tom Hutchison – Representing Fresh and Easy Neighborhood Markets

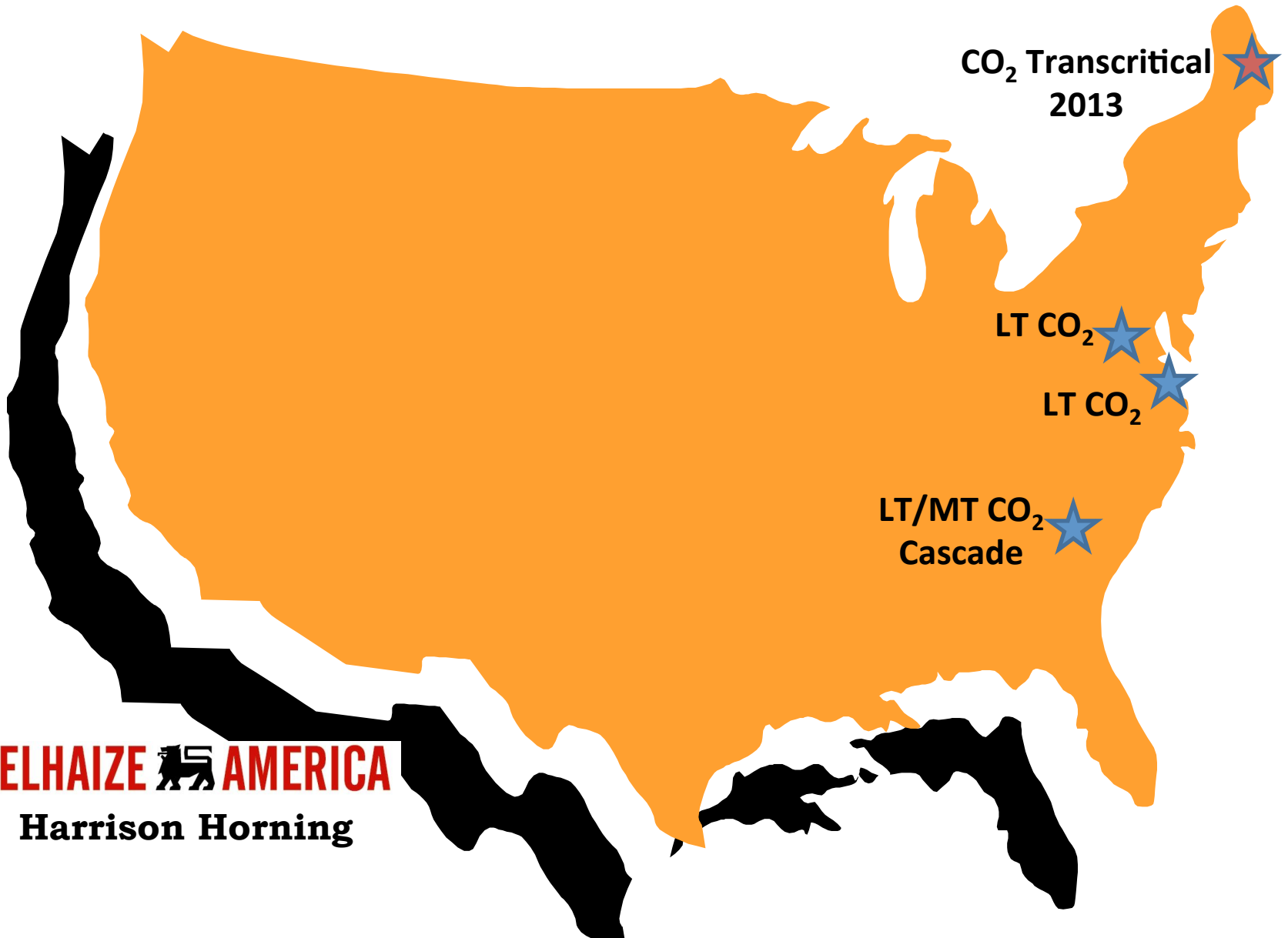
Natural Refrigerant Milestones



- May 2009 - Joined Greenhill
- Oct 2010 - Installed Sub-critical Cascade system, with CO2 DX low temp, and pumped CO2 medium temp, 134a top cycle, and HVAC – Rosemead California
- May 2011 - Installed Propane self contained cases – San Francisco, California
- Oct 2011 - Installed Sub-critical Cascade system with CO2 DX low temp, glycol Compact Chiller medium temp, 404a top cycle, and HVAC – Folsom California
- Currently in design Sub-critical Cascade system, with DX low temp, and pumped CO2 medium temp, Ammonia Top Cycle, Glycol HVAC – Sacramento California



Delhaize Stores with Natural Refrigerants



DELHAIZE  **AMERICA**
Harrison Horning



Kathy Loftus

- Dedham, Pearl & Trolley pumped CO2
- Folsom , Wellesley CO2 cascade
- Brooklyn, NY CO2 transcritical 2013
- Analyzed ammonia for a NY store; will continue to evaluate



Simon Bérubé

- Started transitioning 2006
- 28 CO2 Transcriticals-1st in 2009
- 9 Secondary loop systems w/HFC primary & glycol, CO2, or Syltherm secondary
- Warehouses w/ammonia, glycol, CO2



Richard Heath

- Albertsons Carpinteria ammonia primary, CO2 secondary – 1st all natural store in the nation
- Chestnut Hill Star Mkt compact chiller HFC primary w/glycol & CO2 secondary
- Investigating CO2 transcritical



Harrison Horning

- Standard for new systems is R407A with reduced charge where feasible
- Have tested CO2 pumped and cascade
- Planning to test CO2 transcritical



Tom Hutchison

- Rosemead, CA CO2 cascade system
- San Francisco, CA propane self-contained cases
- Folsom, CA compact chiller CO2 DX low temp, glycol compact chiller medium temp
- Sacramento, CA designing CO2 DX low temp, ammonia & CO2 medium temp, Glycol HVAC