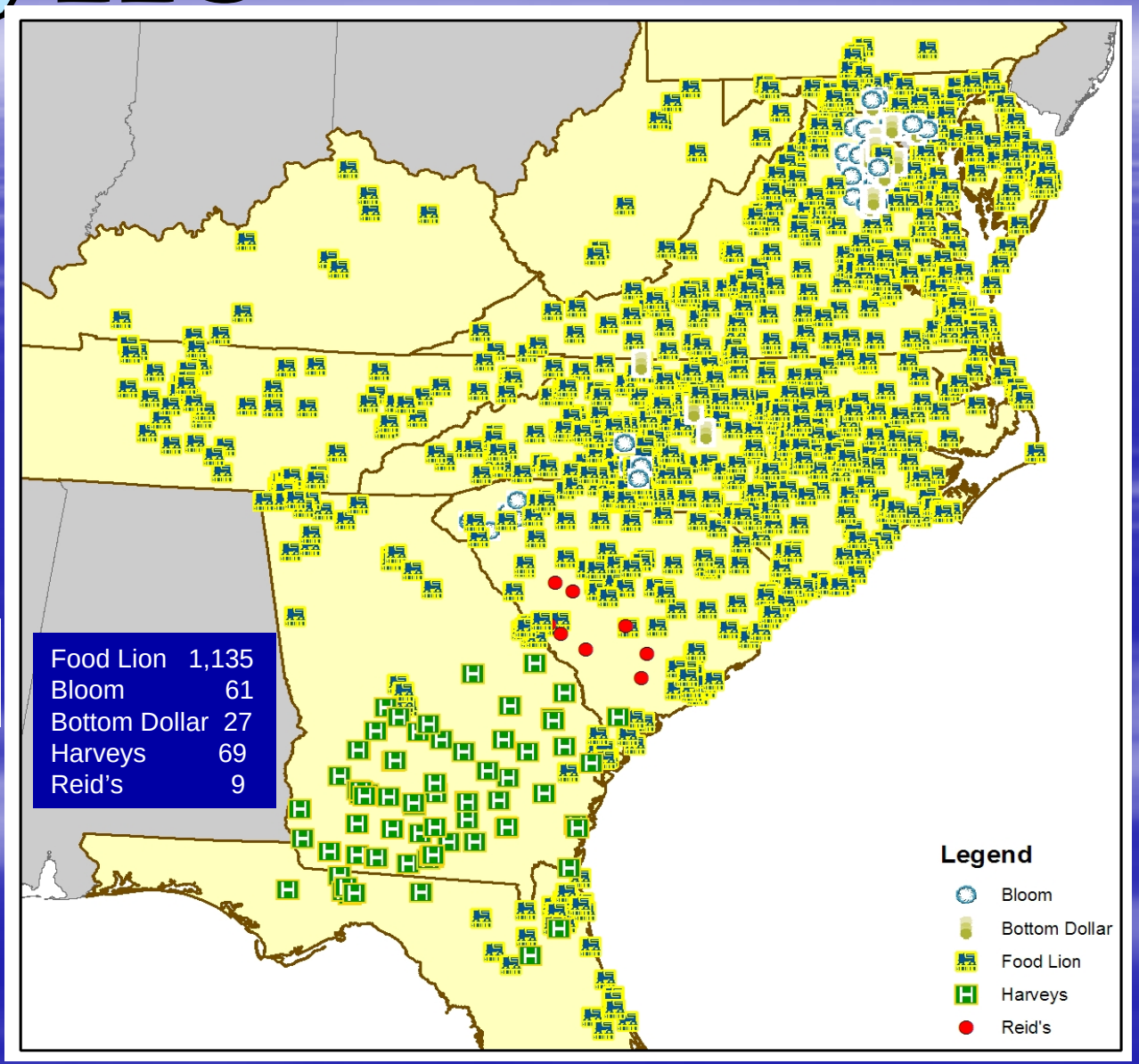
Partnering with the EPA

FOOD LION, LLC

Wayne Rosa

Food Lion, LLC



Importance of Energy Management

- Grocery Stores – Low Margin
- Hyper competitive grocery store environment
- Second largest operating cost for a store
- Grocery stores are twice as energy intensive as any other commercial/retail customer

U.S. EPA's ENERGY STAR

- Energy Star Partner since 1998
- Portfolio Manager
- Benchmark Energy Performance (0-100)
- Initial Score: Less than 80%

Food Lion's Energy Management Program

- GOALS:
  - Reduce energy consumption
  - Reduce energy costs
  - Design energy efficient stores
  - Implementing new energy efficient technologies

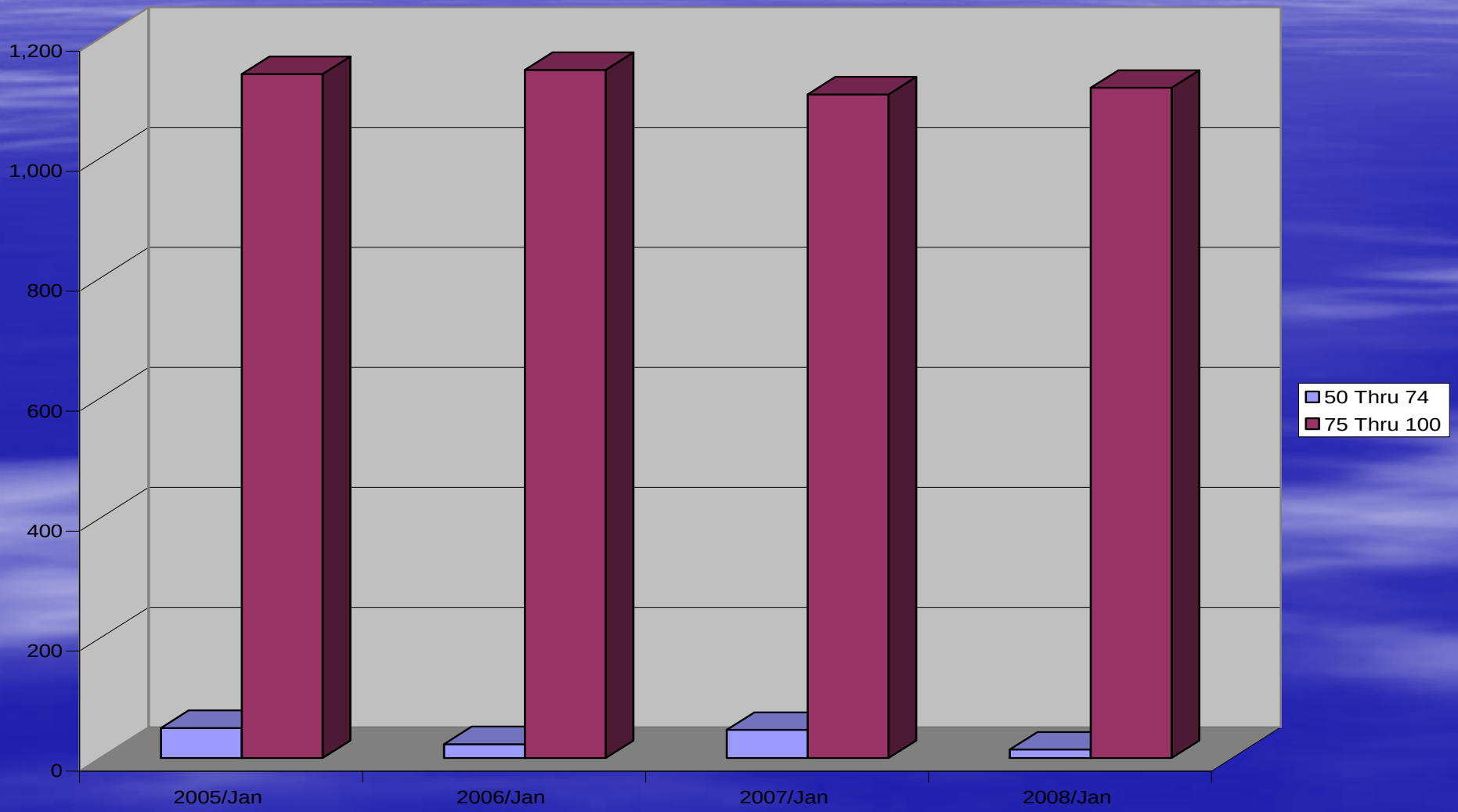
U.S. EPA's Energy Star Tool

- Food Lion's Average Store Scores

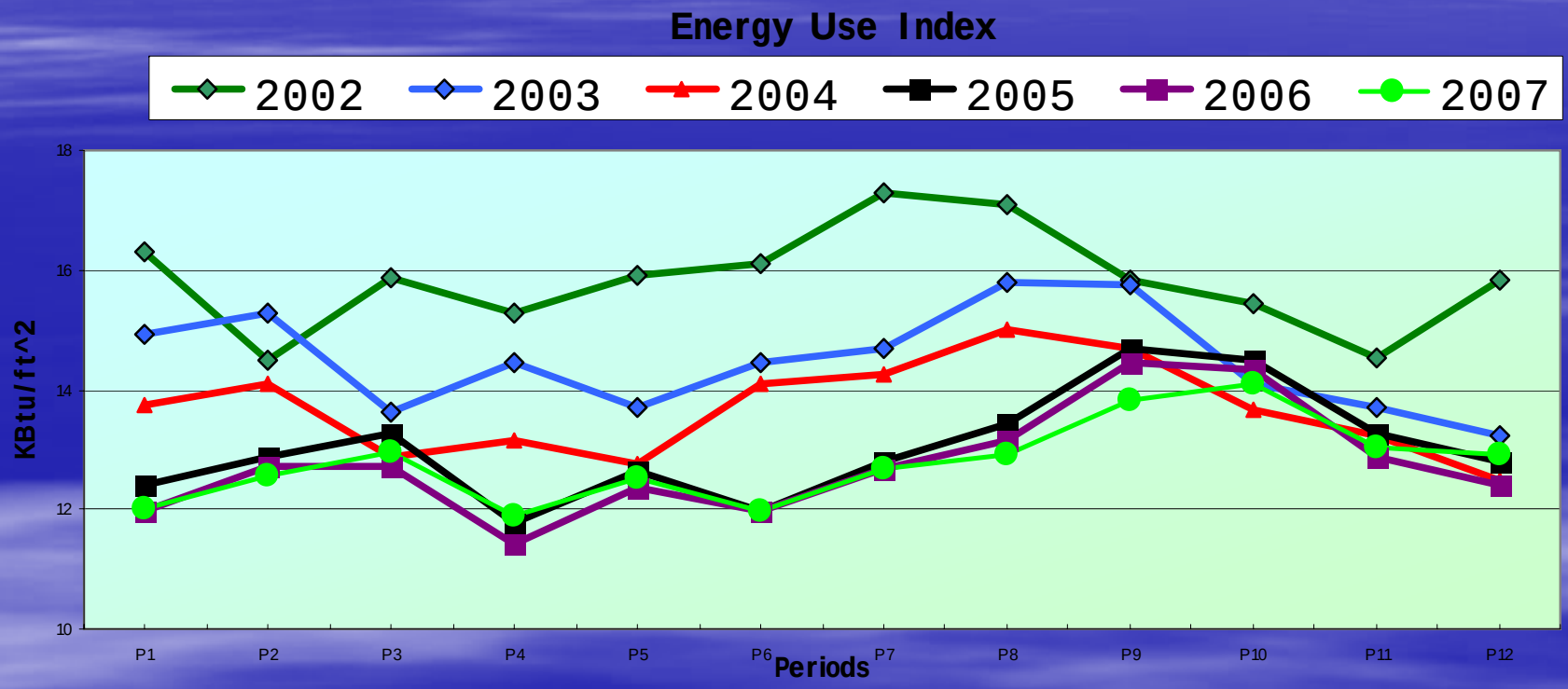
2004	81.3
2005	85.6
2006	87.0
2007	87.0
2008	90.0

- Leverage benchmarking for better business decisions for Prototypes

Food Lion Current Energy Star Scores



Food Lion
Energy Use Index Trend



U.S. EPA's ENERGY STAR

- Lead supermarket industry for "Energy Star" qualified stores – 724 stores
- Performance goal for all new stores:
  New Store Average score for 2008 is 90
- Supports our Corporate Energy Mission

How do we do it?

- BENCHMARKING…is the key!
  - EPA's Energy Star Portfolio Manager
  - Third Party Benchmarking thru Bill Paying Service
  - In-House Benchmarking through Sub-Metering
- Value of Benchmarking
  - History, Consistent Format, On-line, exceptions based reporting, trends, reporting capabilities, budgets and forecasts.

GreenChill

- Food Lion was one of the Founding Members
- Establish base year for refrigerant stock & emissions reporting
- Develop corporate Refrigerant Management Plan
- Commit to using non-ODP Refrigerants
- Advanced Refrigeration Systems
  - Glycol Secondary Loop (Dinwiddie, VA)
  - CO2 Secondary Loop (Montpelier, VA)
  - CO2 & Glycol Secondary Loop (Portsmouth, VA)

Secondary Loop CO_2 Food Lion Case Study

Montpelier, VA

Pros:

- Over half refrigerant charge reductions (approx. 60% reduction)
- Primary refrigerant (R-507) side leak detection much easier and less time consuming
- Obvious environmental impacts
- Energy is comparable, electric defrost doesn't seem to impact utility bill
- Case lineups can be set with one inlet and outlet per circuit instead of per case.
- Copper tubing size reduction = substantial material savings and storage.
- No issues with oil or orifices in the cases.
- CO_2 is super efficient - with as little as 5° TD in cases.
- Learning curve with new refrigerants (R-502, R-22, R-507, R-744)

Secondary Loop CO_2 Food Lion Case Study
Montpelier, VA

Lessons Learned:

- Industrial grade insulation expensive material and labor cost (next generation will utilize conventional DX insulation)
- Remote store location requires CO_2 to be stored in machine room
- CO_2 leak detectors have slower response time making it difficult to pinpoint leaks
- Could not implement defrost skipping strategy due to ice on evaporators during high load season
- Identified the need for a detailed start up guide
- A modified loop system was used in this store (next generation will use a full loop piping configuration)

Secondary Loop CO_2 Food Lion Case Study

Montpelier, VA

Store Installation Cost:

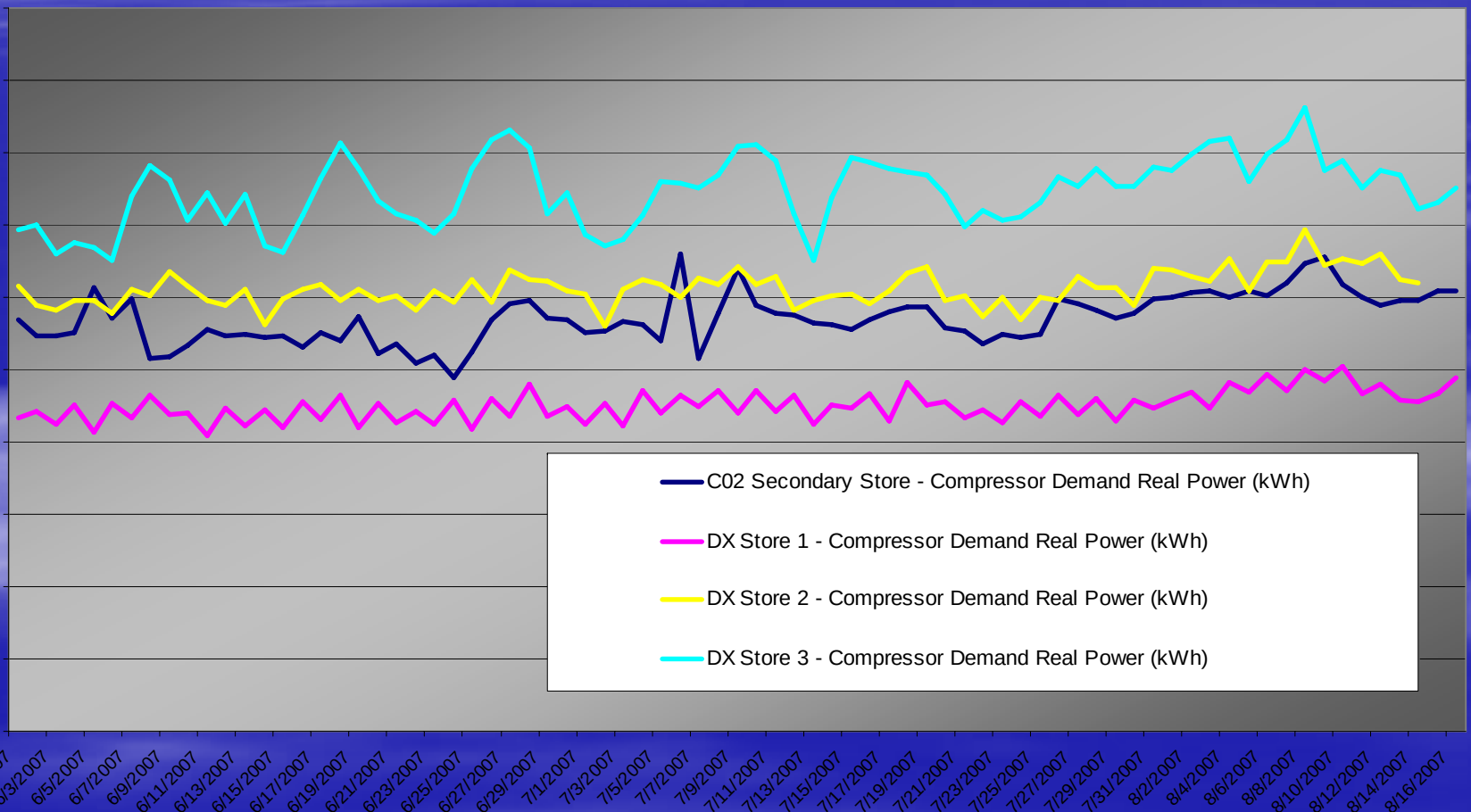
The CO_2 secondary loop installation in this store was equivalent to the cost of a conventional DX installation.

Secondary Loop CO_2 Food Lion Case Study

Montpelier, VA

- **Energy Comparison**

  CO_2 Secondary Store vs DX Stores



Innovative Refrigeration Systems

Medium Temp Glycol / Low Temp CO_2

Portsmouth, VA

- Opening Date April 16, 2008
- Over 60% reduction in refrigeration charge
- Competitive installation cost compared to traditional Dx System
- CO_2 charge cost less than $400

Summary

- Energy Star: First Benchmarking Tool
- GreenChill:
  - Manage/Understand Refrigeration Compliance
  - Advanced Refrigeration Systems
- Food Lion first Corporate Responsibility Report
- EPA's programs "Sustain" performance