



National Resource Management, Inc.

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## **National Grid Small Business Energy Efficiency Program Overview**

**Central New York Energy Expo  
March 30, 2010**

# Agenda

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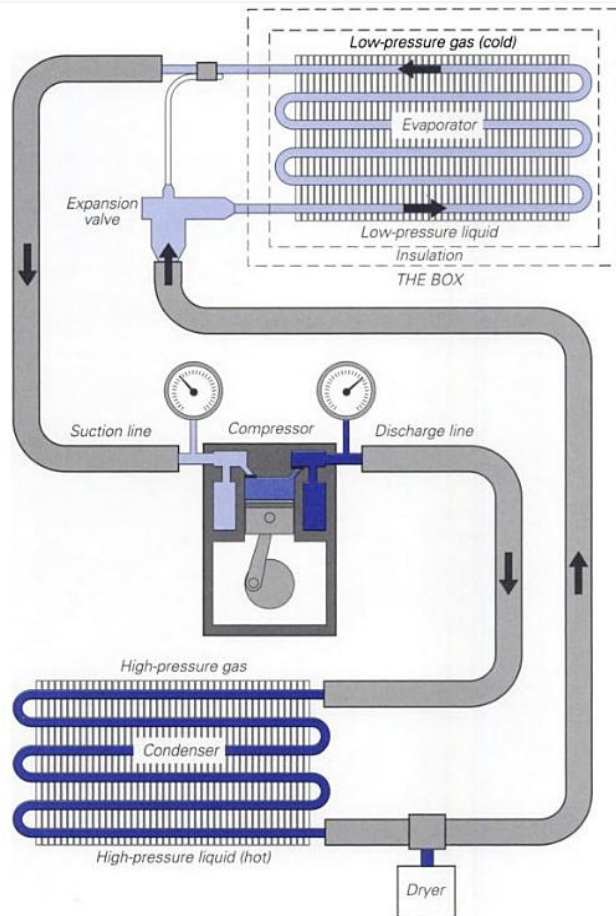
- National Grid Cooler Retrofit Program
- Refrigeration 101
- Smart Thermostat Controls, Anti-Sweat Heater Controls, ECM's, and LED Lighting
- Next Steps

# National Grid Cooler Retrofit Program for Small Business

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- Free Energy Audit
- Walk-in Coolers and Freezers
- Controls for Anti-Sweat Heaters for Coolers and Freezers-(FSU-Free Standing Units)
- Novelty Coolers
- Retrofit of Evaporator fan motors to ECM(Electronic Commutated Motors)

# Refrigeration 101: Refrigeration is Simply the Removal of Heat

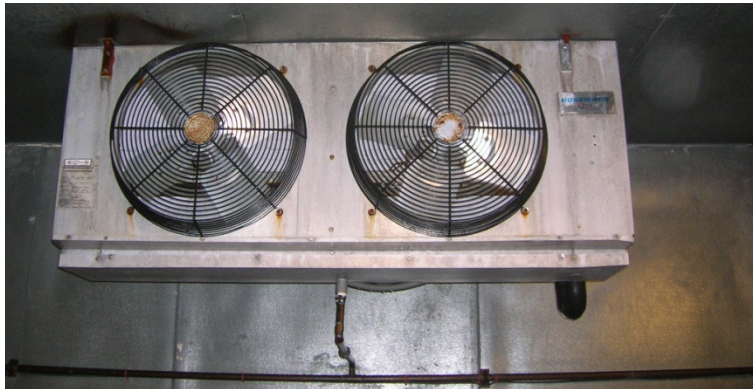


## *Here's How It Works*

- Refrigerant is sucked into a compressor
- The compressor pressurizes gas and in the process, raises its temperature
- The hot compressed gas flows through the discharge line to a condenser – heat exchanger – where it is cooled to a temperature below its condensation point and turns to liquid
- Through a controlled release, the hot refrigerant is sprayed into evaporator coil at the expansion valve
- Fluid emerges from the expansion valve, the dramatic drop back to near atmospheric pressure cause refrigerant to boil, absorbing heat from the evaporator coil
- From evaporator coil, the cool gas is sucked into the compressor and the cycle is repeated

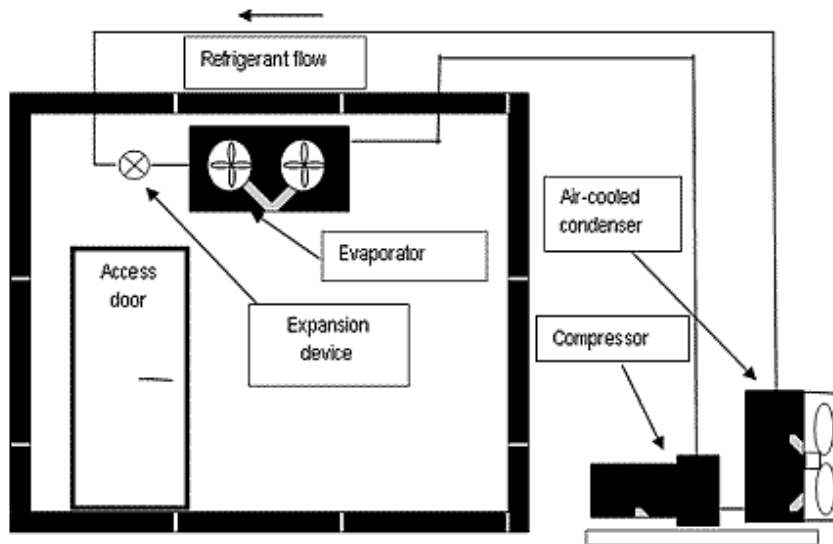
# Refrigeration 101: Smart Refrigeration Controls are a Key Component to a Green Solutions Program

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## *Why Refrigeration is gaining Recognition for Efficiency Opportunities:*

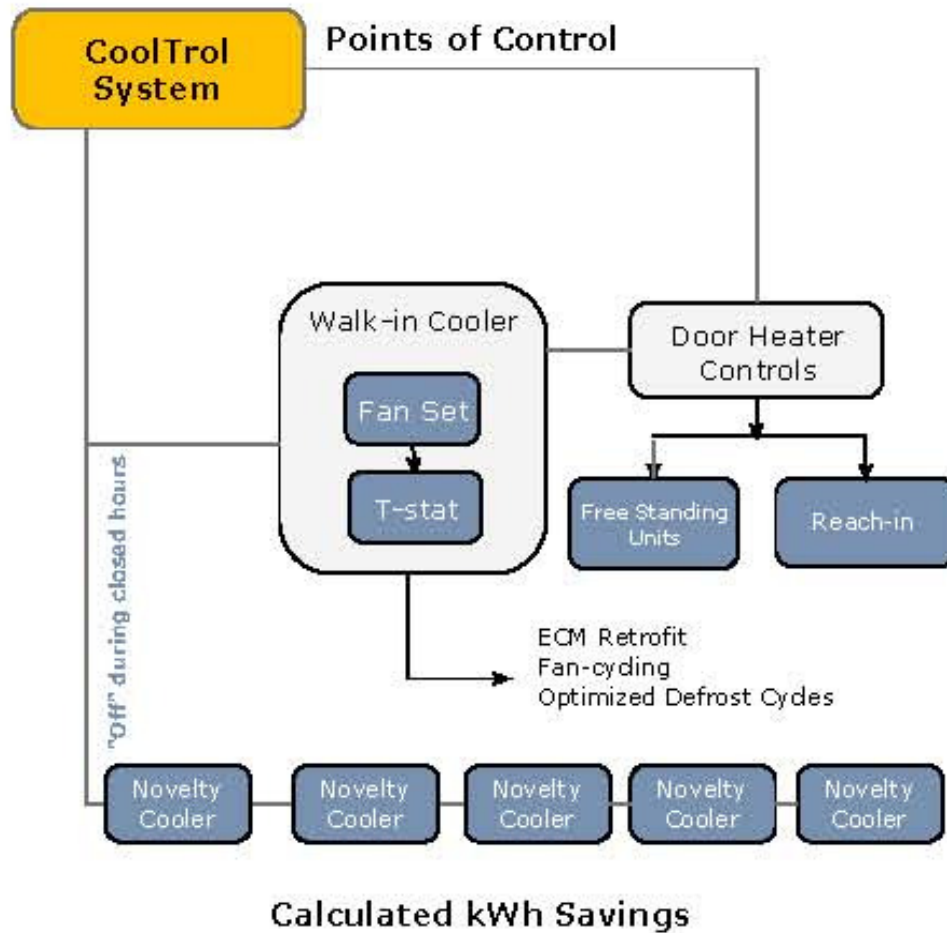
- Systems are sized to maintain temperature on the hottest/most demand day of the year, resulting in excess capacity the rest of the year
- Most existing small and medium size coolers and freezers operate at 30-60% efficiency
- Poor maintenance and lack of knowledge by end user in understanding how performance and energy relate
- Savings are very predictable since refrigeration runs 24/7/365



# CoolTrol™ Control System

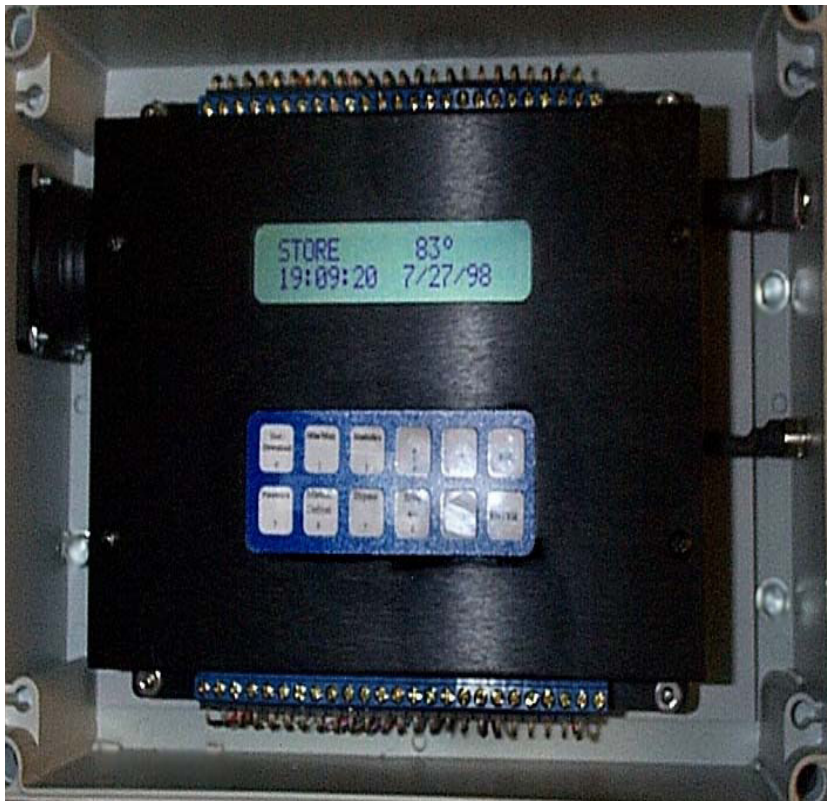
CoolTrol offers personnel and refrigeration technicians a powerful tool to control coolers and additional alarming functionality that seamlessly integrates with existing equipment

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# CoolTrol™ Control System

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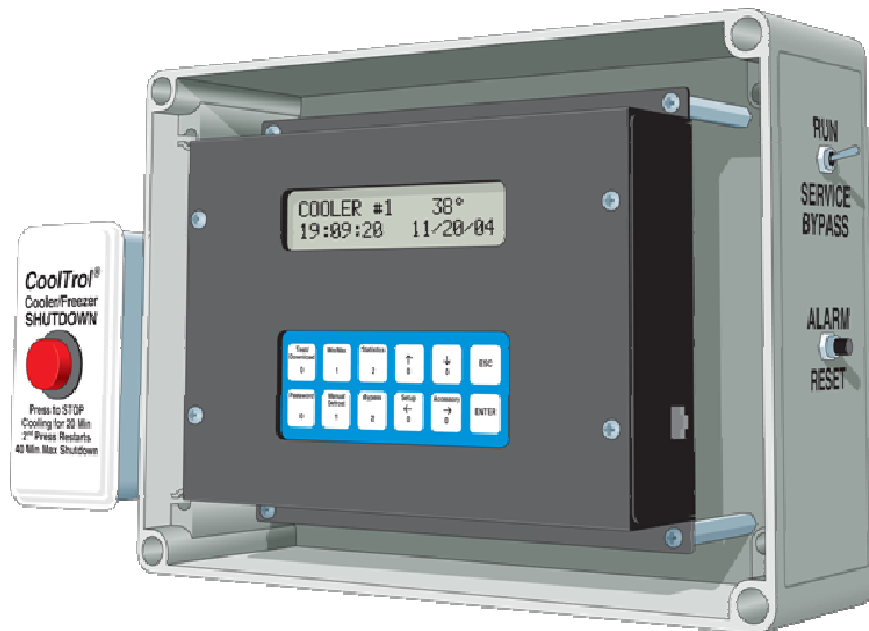
## Feature / Functionality

- Tracks temperatures and equipment run time for statistical analysis of performance and energy use
- Provides historical usage patterns, which extend the life of the equipment and saves energy
- Optimized defrost cycles are based on coil temperature and run time

(\* ) Optional Freezer/Cooler Monitoring

# CoolTrol™ Control System

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## Touch Pad Access

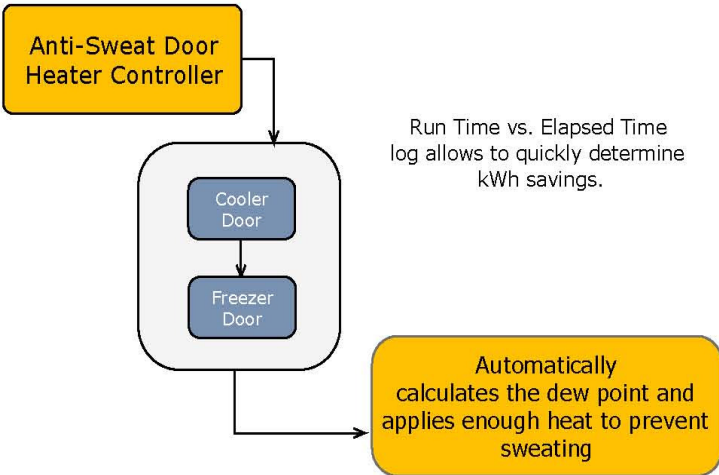
- Download information rather than clerk performed manual reads
- Bypass for equipment diagnostics using original thermostat
- Manual Defrost for unscheduled activation
- Set ups of temperatures, time/date, & dew point for operators

## Cooler Shutdown Button

- Store personnel can easily shut cooler off for comfort and to reduce cold air loss thereby improving employee productivity in coolers

# Anti-Sweat Door Heater Control & ECM Retro-fit

Optimize energy use in free standing units with the Anti-Sweat Door Heater Controller and retrofit existing evaporator fans with electronically commutated motors (ECM)



Existing



After Retrofit



- Low Cost Solution for Big kWh Savings:**
- Cooler Doors saves: 70% – 90%
  - Freezer Doors saves: 30% – 50%
  - ECM Retrofit saves: 50% – 60%

# LED Lighting Retrofit

It's a win-win solution for both utility incentive programs and end-use customers

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## LED Lighting Specifications:

- 1.5 Watts per foot
- 50,000 hours
- 30% higher lumen output than most LEDs
- Retains high lumen output for the full life of the LED
- Significant glare reduction on marketplace floor
- Patented on board driver



# National Grid Small Business Energy Efficiency Program

Next steps-

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- Next step-Sign up for a free energy audit
- Questions???
- Thank you!

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