# PROPANE

Refrigerant and Guardian® Merchandiser

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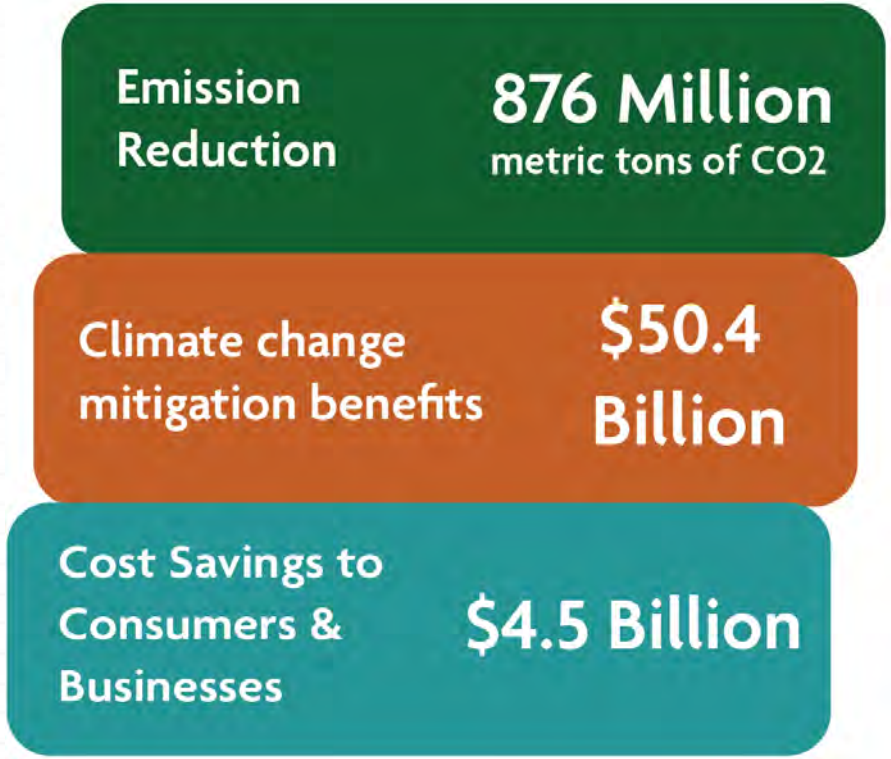
# Refrigerant Regulations

**The AIM Act was passed by the EPA and:**

- Sets a maximum GWP limit on HFCs
- Prohibits the *manufacture or import* of products that use higher GWP HFCs after January 1, 2025
- Prohibits the *sale, distribution, and export* of these products after January 1, 2028
- Prohibits the *installation* of new systems that use higher-GWP HFCs




## How does this affect you?

Your current provider will not be able to sell you HFC refrigeration systems by the compliance date of your applicable subsector. The EPA has allowed an existing system to continue its operation to the end of its useful life. The systems may be serviced and repaired throughout their use, including replacing components. Components needed for repair are allowed to continue being manufactured.

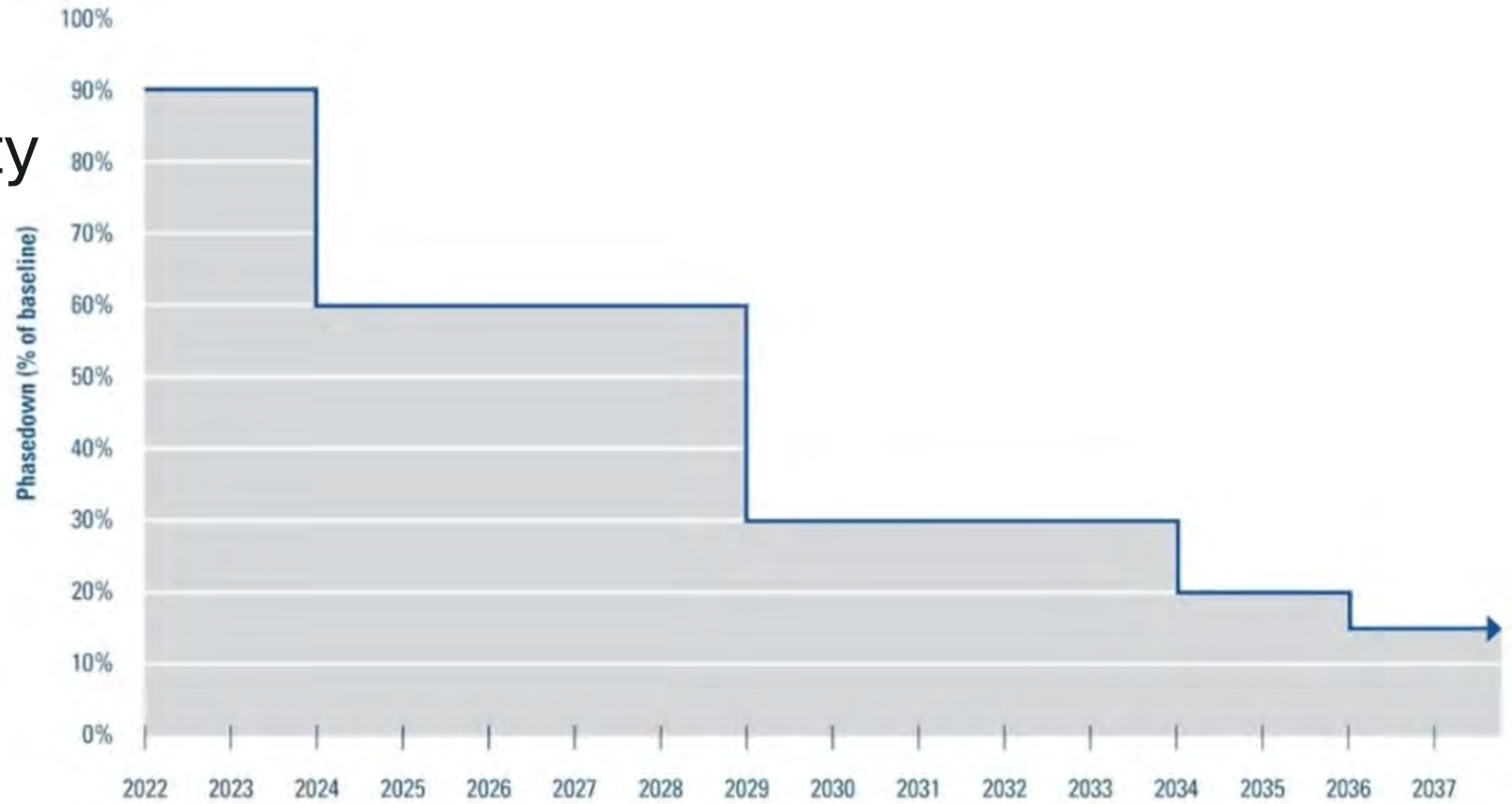
# AIM Act Refrigerant Regulations

Current Rule

| SUBSECTOR | COMPLIANCE DATE[1] | PRODUCTS | GWP LIMIT |
|---|---|---|---|
| Self Contained "stand-alone unit" | 01/01/2025 | Retail food- refrigeration stand-alone units | 150 |
| Remote Condensing Units<br><br>*Zero Zone Hybrid" Display Cases* | 01/01/2026 | With 200 or more lb refrigerant charge, excluding high temp side of cascade system | 150 |
| | | With less than 200 lb refrigerant charge | 300 |
| | | High temp side of cascade system | 300 |
| All Retail Systems | 01/01/2027 | With 200 or more lb refrigerant charge, excluding high temp side of cascade system | 150 |
| | | With less than 200 lb refrigerant charge | 300 |
| | | High temp side of cascade | 300 |

# Future of Refrigerants

- Market stability -
- Refrigerant availability
  - Phase down
  - PFAS legislation
  - State regulations



# Refrigerant Options

# Choosing the Right Refrigerant

## $CO_2$

### Advantages

- Widely used across all refrigeration applications
- High availability
- Excellent heat transfer properties

### Considerations

- Higher operating pressure than traditional HFC refrigerants
- Needs specialized components

## PROPANE

### Advantages

- Low charge & less system stress
- Highly efficient; smaller charges & components
- Future-proof regulatory compliance

### Considerations

- Highly flammable; requires strict handling
- Charge limits; challenging to use in large systems

## A2L

### Advantages

- Similar design components to HFCs
- Available for use in large systems for low & medium temp applications

### Considerations

- Mildly flammable; requires leak detection & ventilation
- Use is currently restricted to some local codes

# What is Propane (R-290)?

## Chemical and Physical Properties

Propane (R-290) is a colorless gas with formula C3H8, derived from natural gas and petroleum refining.

## Thermodynamic Efficiency

Its low boiling point and high latent heat make propane highly efficient for refrigeration applications.

## Safety and Flammability

Classified as A3, propane is non-toxic but highly flammable, requiring strict safety and ventilation measures.

## Charge Size Limitation

Maximum propane charge size is limited to 150 grams in the US to reduce fire and explosion risks.

# Environmental Profile

## Low Global Warming Potential

Propane has a very low GWP of 3, much lower than traditional refrigerants like R-134a and R-404A.

## Zero Ozone Depletion

Propane has an Ozone Depletion Potential of zero, ensuring it does not harm the ozone layer.

## Greenhouse Gas Emission Reduction

Propane systems achieve up to 99.9% reduction in greenhouse gas emissions due to low leaks and less refrigerant use.

## Non-Toxic and Sustainable

Propane is non-toxic and supports global sustainability goals and environmental regulations.

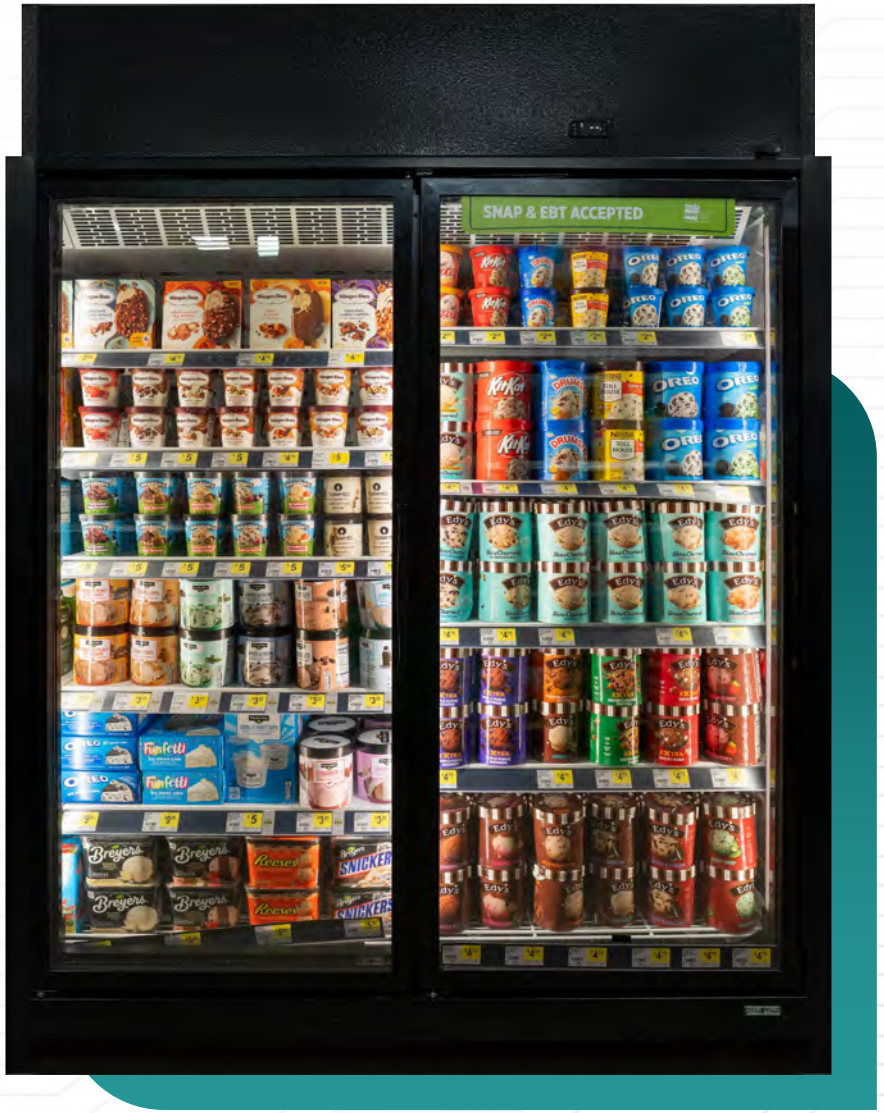
# PROPANE

What is it?

- Self-contained system
- Plug-and-play
- Minimal installation

What is it good for?

- Convenience/small-format shops
- Front-of-store display
- Grab-and-go
- Liquor stores and markets



ZERO ZONE®
GUARDIAN
merchandiser®

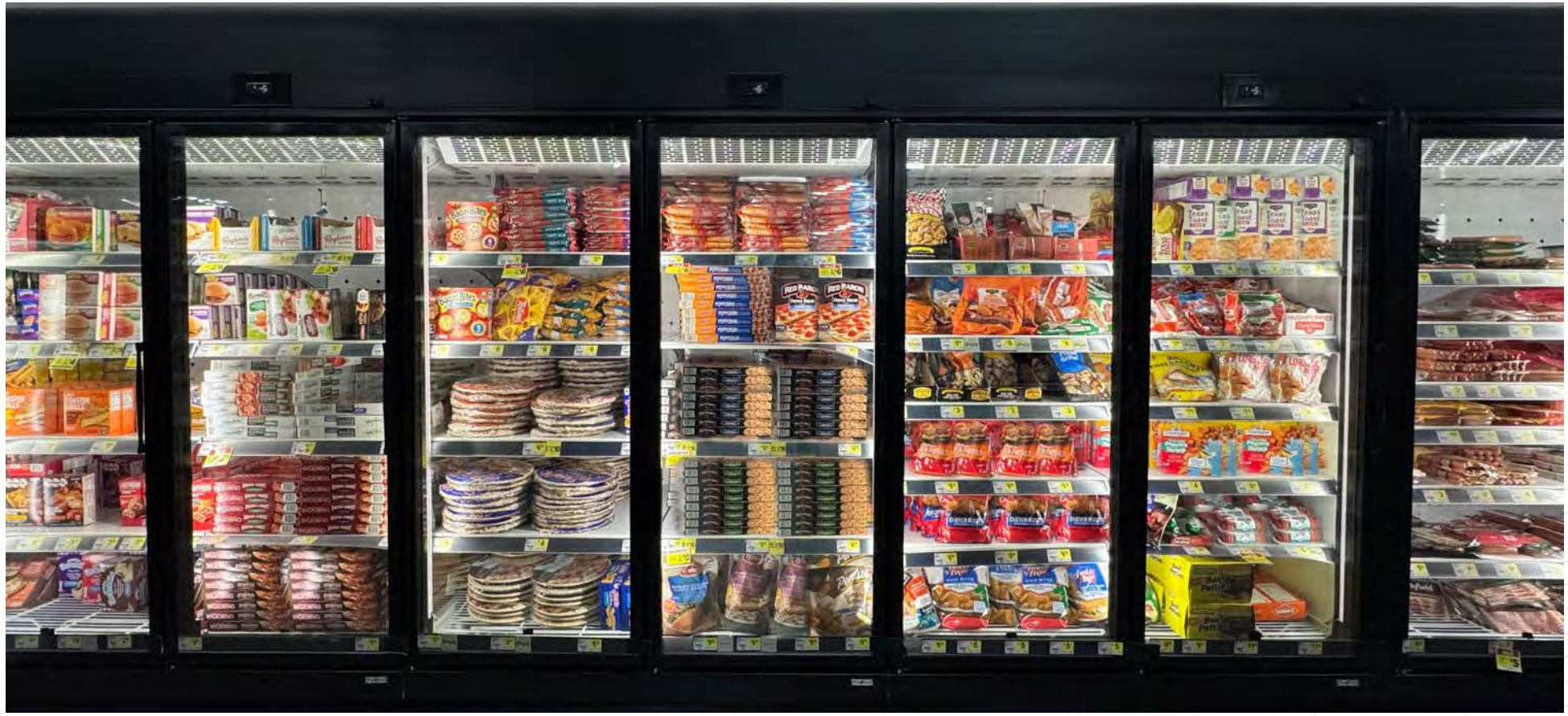
# THE SENTINEL FOR SUSTAINABILITY

**Guardian Merchandiser: The guardian of our planet and of your product**

Embark on a journey into the heart of innovation and environmental responsibility with our self-contained R290 propane refrigerated cases, thoughtfully designed for your application. These coolers and freezers, available in 2 to 5-door configurations, seamlessly blend the enduring excellence of classic Zero Zone products.

# PRESENTING THE LINEUP

GUARDIAN MERCHANDISER



*Introducing the Guardian® Merchandiser, a true grocery store style case with the serviceability of a self-contained system. Roof-mounted packaged refrigeration units (PRU) maximize the packout and facings inside the case.*

**NATURAL REFRIGERANT | SELF-CONTAINED | CONTINUOUS LINEUP | 2-5 DOOR | LOW & MEDIUM TEMP | PACKAGED REFRIGERATION**

# FEATURES

GUARDIAN MERCHANDISER

ZERO ZONE®

## LIGHTING

LED lights provide even, energy-saving product illumination creating a beautiful display that won't fade products.

## DOORS

CoolView® Envision 30" standard 68" doors. Designed to resist condensation and sweating. Available with 2 to 5-door count.

## REGULATORY

DOE, ENERGY STAR®, UL, AHRI, and ASHRAE certified.

## GROCERY LINEUP

Case to case joining that creates a seamless lineup in grocery stores, convenience stores and dollar stores.

## PLUG AND PLAY

Roof-mounted packaged refrigeration unit allows for the case to be ready to go quickly by simply plugging in the case. With the system being on top of the case, this allows for easy serviceability and no refrigeration tech needed upon installation.

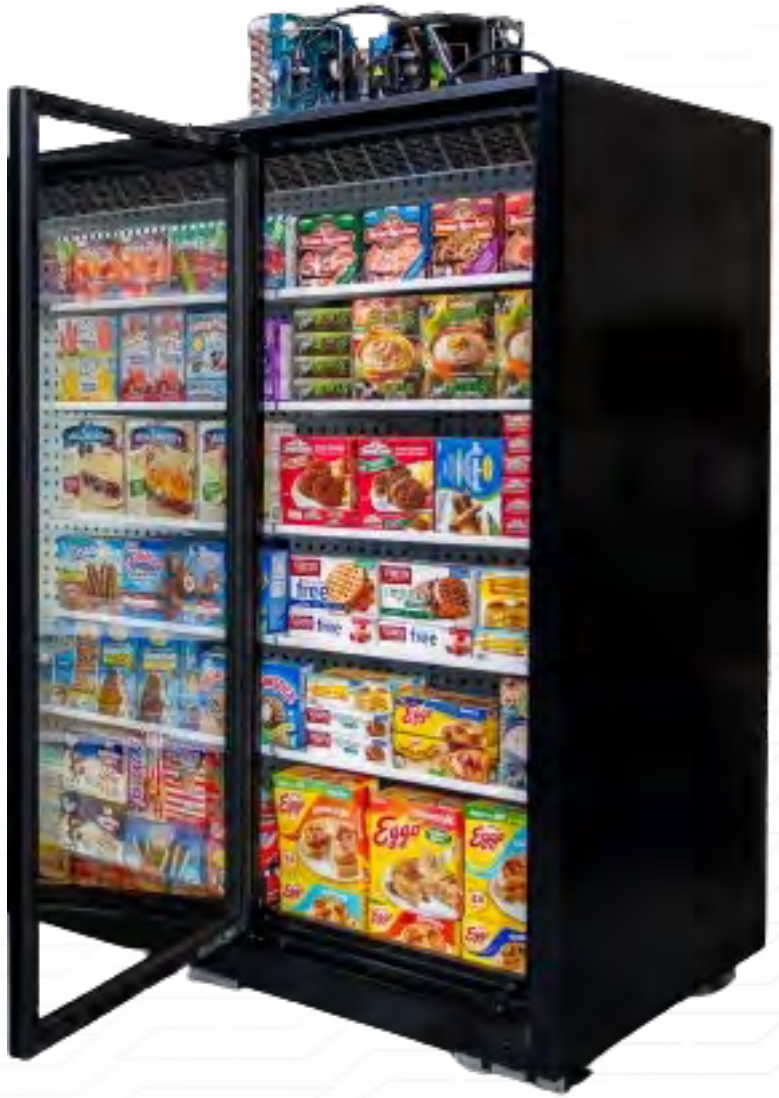
## ENERGY

Our cutting-edge technology ensures efficient cooling, saving you money on energy bills while providing reliable and sustainable cooling and freezing solutions for your needs.

# Full-Sized Features

GUARDIAN MERCHANDISER

ZERO ZONE®



### FULL LINE UP

We intentionally kept this product line as similar Highlight as possible, so you don't need to make accommodation for us. We're still offering a 2 through 5-door medium and low temp

### CONSISTENT PRODUCT TEMPS

Appreciate consistent product temps throughout the case with cooler settings at 33F and freezer at -3F for frozen food and -12F for ice cream.

### SAME PLANOGRAM

No need to change your floor plan or merchandising plan, enjoy the same packout, facings, and footprint.

### FITS THROUGH 80" DOORWAY

Enjoy the same advantage with Guardian fitting through a standard 80" door without tipping the case or removing components

### FORKLIFTABLE

Remove cases from the truck and into the store with a forklift.

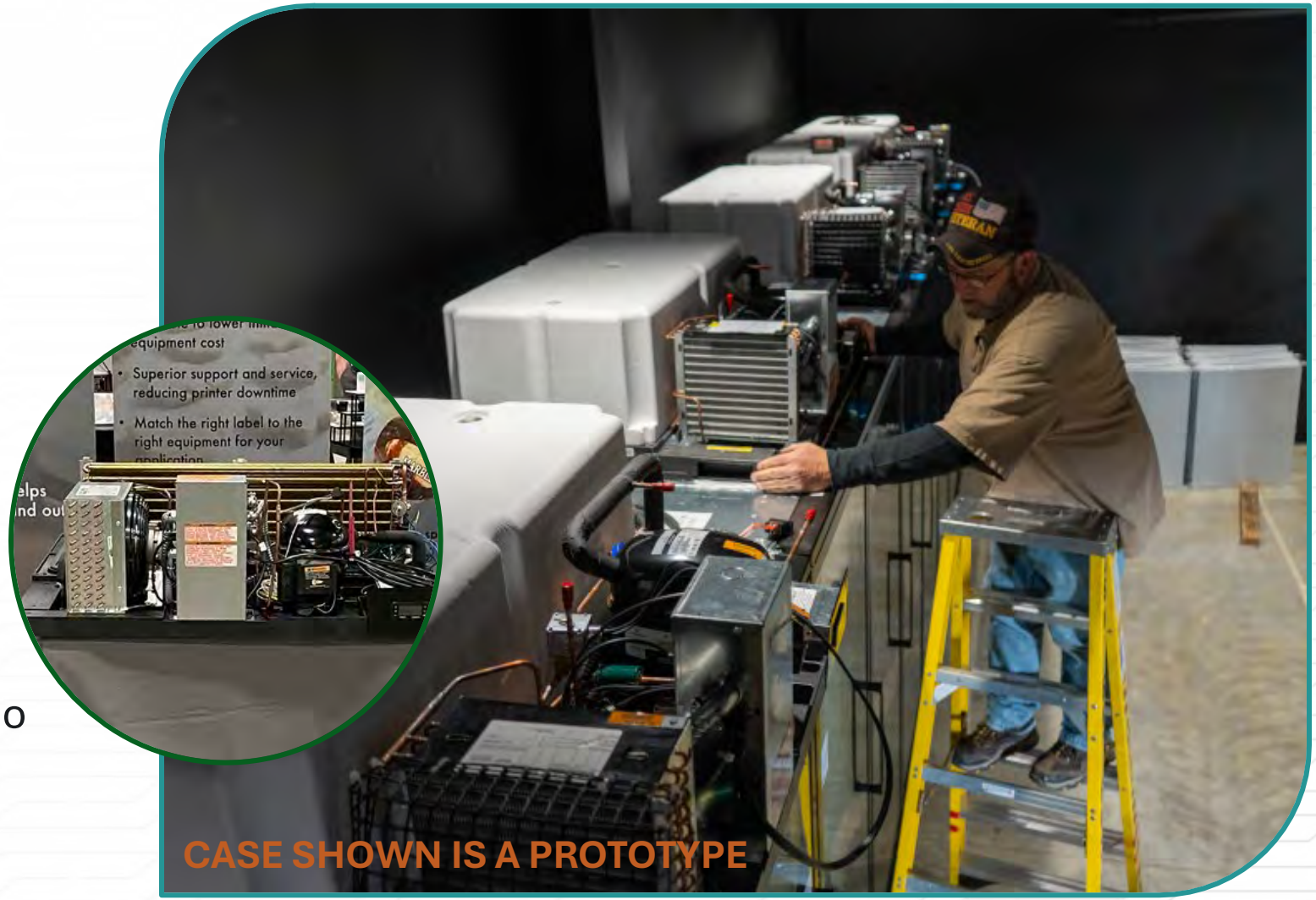
### ENERGY

A grocery store case with industry standard energy performance. Meets and exceeds DOE and EnergyStar.

# PACKAGED REFRIGERATION UNIT

GUARDIAN MERCHANDISER

- Under 150g of propane – does not need leak mitigation
- In-field swap friendly
- Install in as little as 20 minutes
- Less than 80lbs, easy for two people to lift and slide into place
- Setting and installation of PRU
  - No quick connects
  - Plug ‘n play (cord connected)
  - Self-contained condensate (no field install)



# PACKAGED REFRIGERATION UNIT

With a roof-mounted PRU, installation is as easy as plug it in and go—and when it's time for service, everything's accessible right from the top. A PRU in need of attention can be swapped out for a ready-to-run unit in **as little as 20 minutes**, keeping your refrigerated display case up and running with minimal downtime.

# PACKAGED REFRIGERATION UNIT

The maximum charge for a PRU is less than 150 grams or around 10 ounces—less than a standard soda can. That small amount delivers powerful cooling while keeping safety front and center. This minimal charge does not require any leak monitoring devices.

# APPLICATIONS

GUARDIAN MERCHANDISER

ZERO ZONE®

End Caps + Spot Merchandising

Online Grocery Pickup

Remodels

GUARDIAN merchandiser®

ZERO ZONE®

# NOMENCLATURE

GUARDIAN MERCHANDISER

ZERO ZONE®

# 3CGLC30-D

| DOORS | TYPE OF CASE | DOOR WIDTH | APPLICATION |
|---|---|---|---|
| **2** | **C** Self-Contain | **30”** | **-D**airy/Deli |
| **3** | **G**uardian | | **-B**everage |
| **4** | **L**ow or **M**edium Temp | | **-P**roduce |
| **5** | **C**antilever Shelving | | |