

# Sustainable Refrigeration Summit

Connecting the Pieces for Supermarket Refrigeration Solutions



NORTH AMERICAN  
**Sustainable  
Refrigeration  
Council**

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## Day 1: Monday, October 24

**9AM-10AM PST**

Keynote: Industry & Regulatory Trends

**11AM-2PM PST**

Technology Focus: Driving CO2 Performance

**1PM-2PM PST**

CO2 Systems: What Retailers Need to Know

## Day 4: Thursday, October 27

**9AM-10AM PST**

Solving the Technician Shortage

**11AM-12PM PST**

Technology Focus: Natural Innovations

**1PM-2PM PST**

Reducing Refrigerant Emissions

## Day 2: Tuesday, October 25

**9AM-10AM PST**

Distributed and Self-contained Systems

**11AM-12PM PST**

Technology Focus: Total Cost of Ownership

**1PM-2PM PST**

Measuring Performance of Natural Technologies

## Day 5: Friday, October 28

**9AM-10:30AM PST**

State & Federal HFC Regulations

**11AM-12:30AM PST**

Workshop: Utility Incentives for Refrigerant GWP

## Day 3: Wednesday, October 26

**9AM-10AM PST**

Integrating Naturals into Existing Stores

**11AM-12PM PST**

Technology Focus: Modular Tech. for Existing Stores

**1PM-2PM PST**

Funding for Naturals

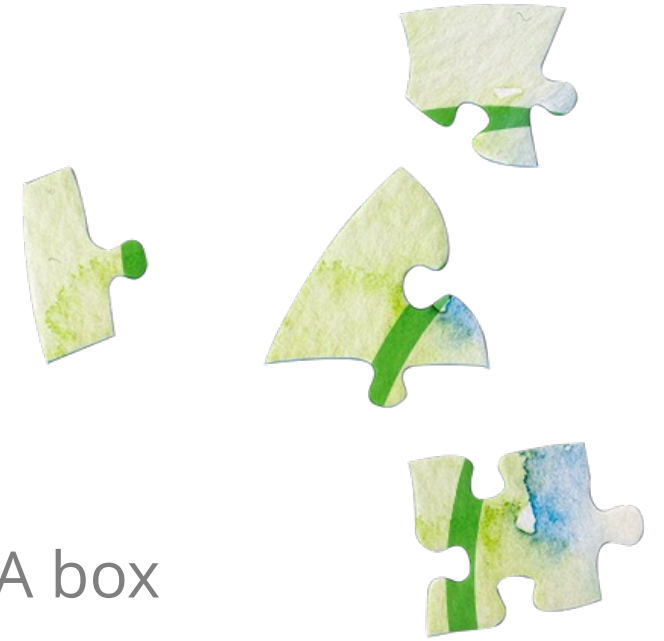
# Summit Program



# Housekeeping & Logistics

## Question and Answer Session

- Participants are muted
- Questions will be moderated at the end
- To ask a question, enter your comment into the Q&A box



**Need Help?** Click the  button on [sustainablerefrigeration.com](https://sustainablerefrigeration.com)

**Missed a Session?** Session recordings will be available on the platform





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# NASRC Staff



**Danielle Wright**  
Executive Director



**Morgan Smith**  
Program & Communications Director



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Membership & Communications  
Coordinator

Contact us at [info@nasrc.org](mailto:info@nasrc.org)





# Keynote: Industry & Regulatory Trends

Monday, October 24<sup>th</sup>, 2022



NORTH AMERICAN  
**Sustainable  
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Council**



# Keynote: Industry & Regulatory Trends

Overview of supermarket refrigeration trends, including the impact of regulations and corporate sustainability targets.



**Danielle Wright**

Executive Director  
*NASRC*



**Morgan Smith**

Program & Communications Director  
*NASRC*



**Tristam Coffin**

COO and Co-Founder  
*effecterra*

# North American Sustainable Refrigeration Council (NASRC)

**Mission** Create sustainable future for supermarket refrigeration by removing barriers to natural refrigerant adoption

➤ **501c3**  
Non-Profit Organization

➤ **150+**  
Members

➤ **38,000+**  
Food Retail Locations

## Goals

- Achieve cost parity
- Increase technology solutions
- Ensure service readiness

## Natural Refrigerants

Carbon Dioxide  
R744

Propane  
R290

Ammonia  
R717





# NASRC End-User Members



# Other NASRC Members





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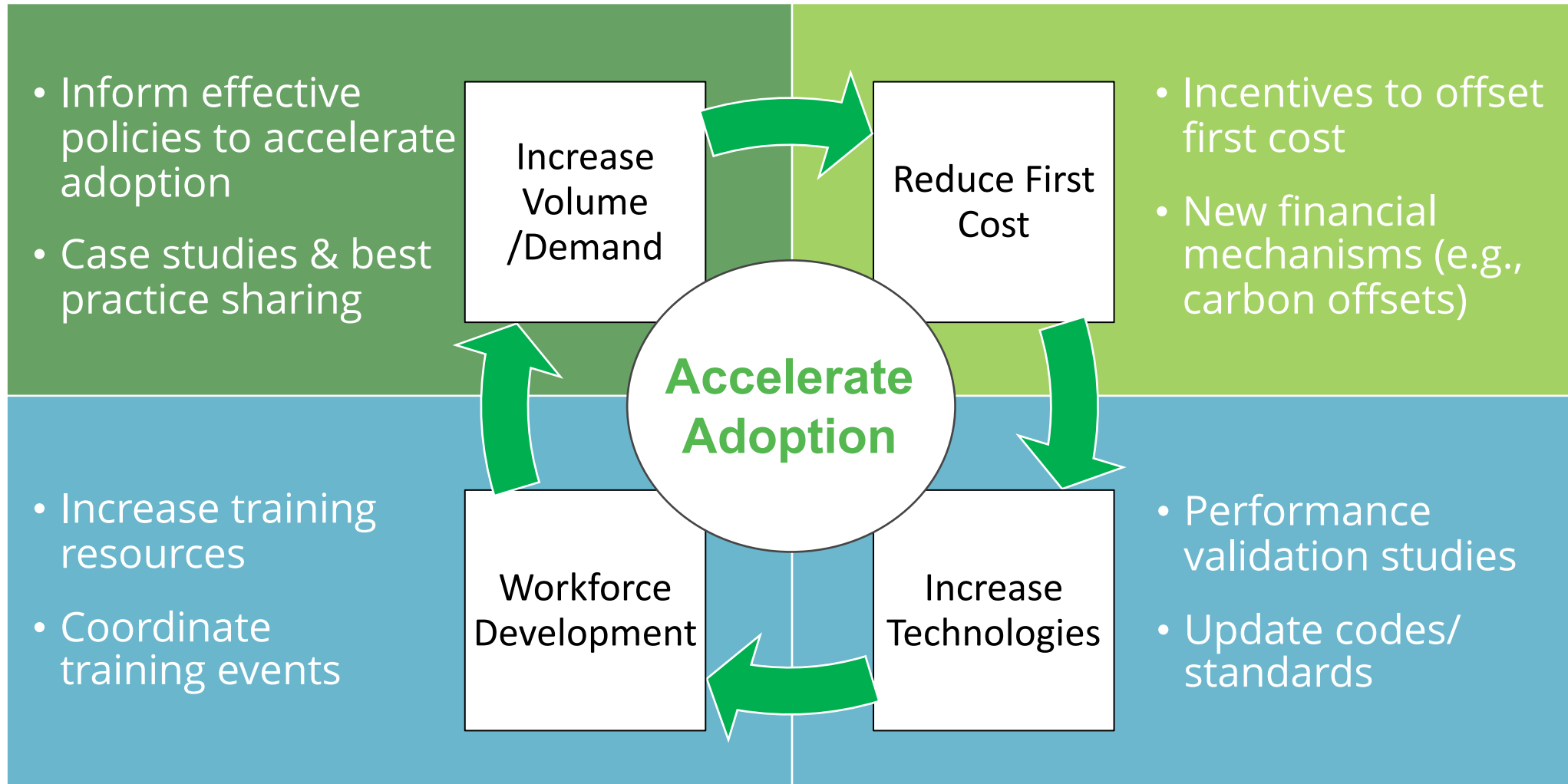
HUSSMANN

**Brad Person**

SEER2

**Keilly Witman**

# What We Do

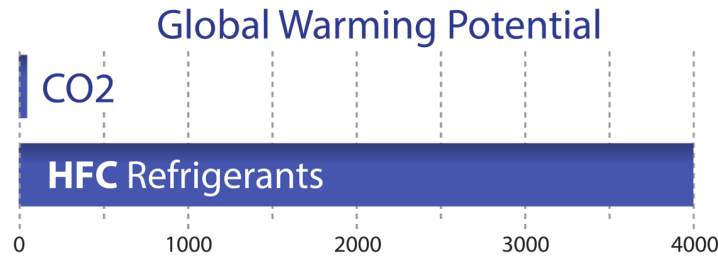




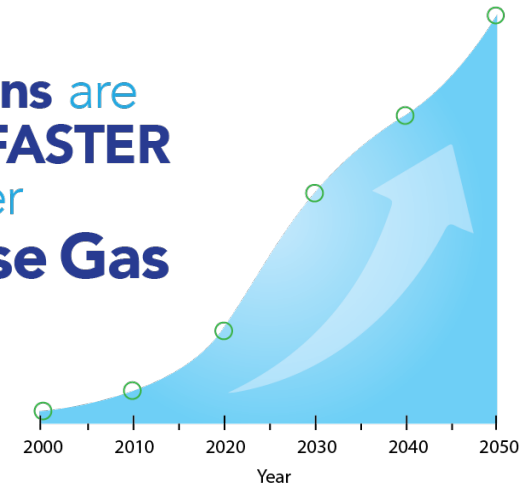
# Environmental Impact: Hydrofluorocarbons (HFCs)

HFCs are **SUPER** climate polluting synthetic chemicals commonly used in air-conditioning & refrigeration

HFCs  
have up to  
**4,000**  
TIMES MORE  
GLOBAL WARMING  
IMPACT than CO2



and...  
HFC Emissions are  
**GROWING FASTER**  
than any other  
**Greenhouse Gas**  
on the  
**Planet**



## The climate impact

from supermarket and grocery store refrigeration leaks

1 Year

**55 MILLION  
MTCO2e**

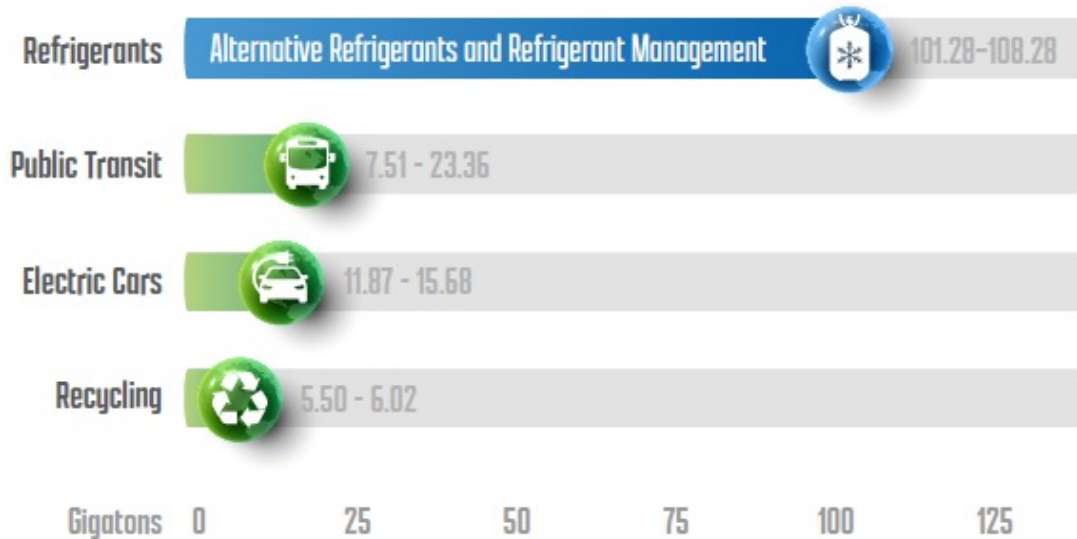
10 Year

**HALF BILLION  
MTCO2e**

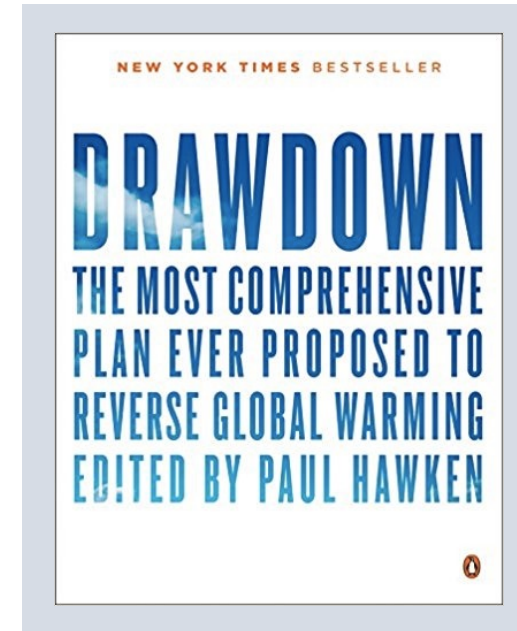
# Environmental Impact: The Leading Climate Solution

## Sustainable Refrigeration is the Most Impactful Solution to Climate Change

CO2 Emission Reduction Potential by 2050



Source: Project Drawdown <https://drawdown.org/solutions/table-of-solutions>



#1 climate solution

Avoid **0.5** degree C of warming by 2100



# Regulatory Trends: AIM Act

## HFC Phase-Down

- 85% reduction HFCs production & consumption by 2036
- First phase-down rulemaking finalized (Sep 2021)

## Potential Impact

- Refrigerant shortages
- Price increase

## Transition to Next-Gen Tech.

- Restrictions on specific HFC uses & approval of substitutes for regulated HFCs (SNAP)
- Rulemaking in progress (Oct 2023)

- <150 GWP for new systems

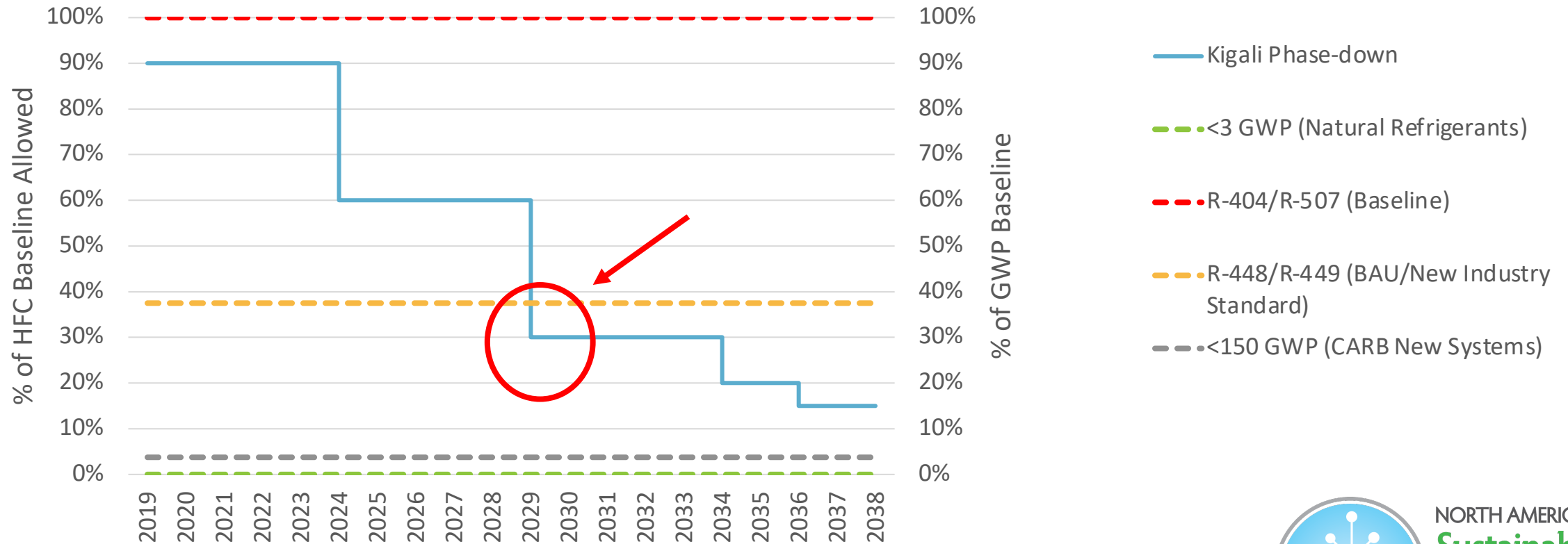
## HFC Refrigerant Management

- Establish regulatory requirements for the mgmt. of refrigerants:
  - Refrigerant reclamation
  - Equipment servicing, repair, disposal, or installation

- Reclaim requirements
- Servicing restrictions

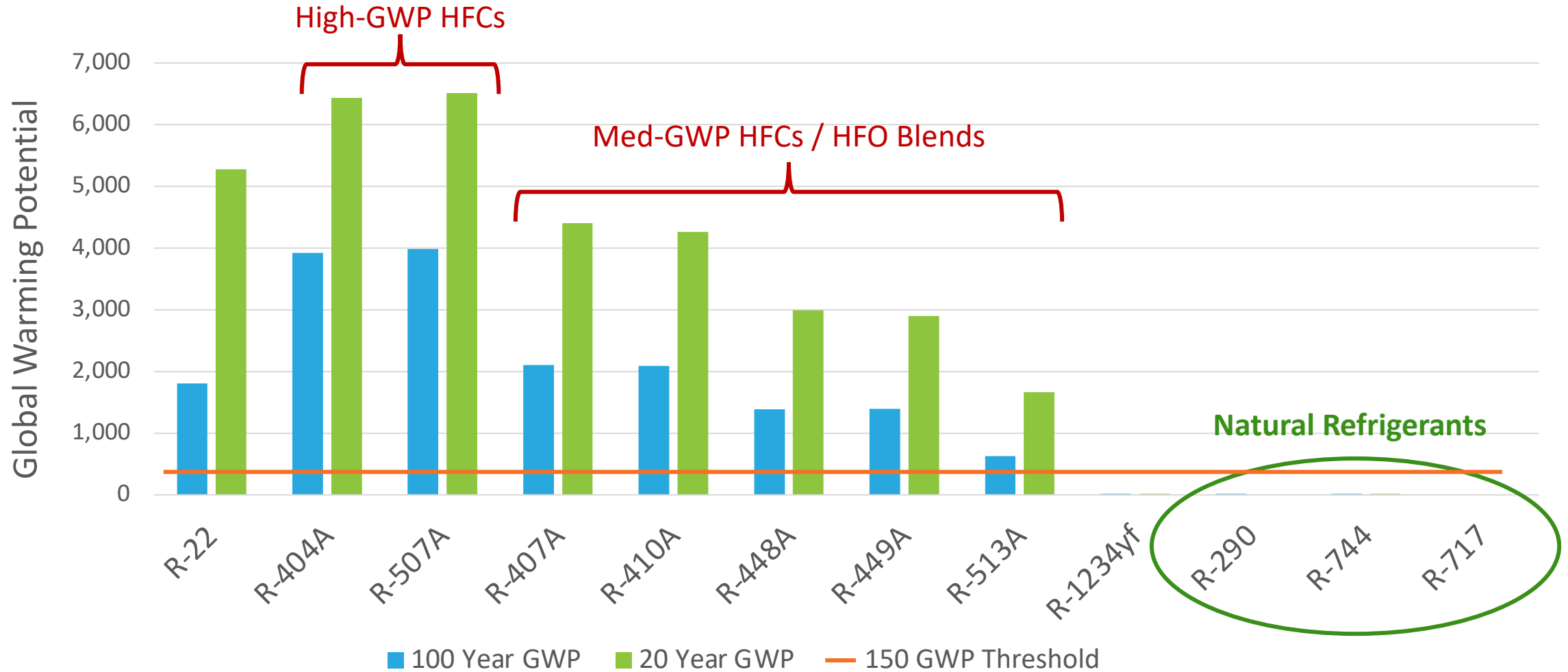
# Regulatory Trends: AIM Act Phasedown

## AIM (Kigali) Phasedown Schedule & Supermarket Refrigerant GWP





# 20 Year vs. 100 Year GWP



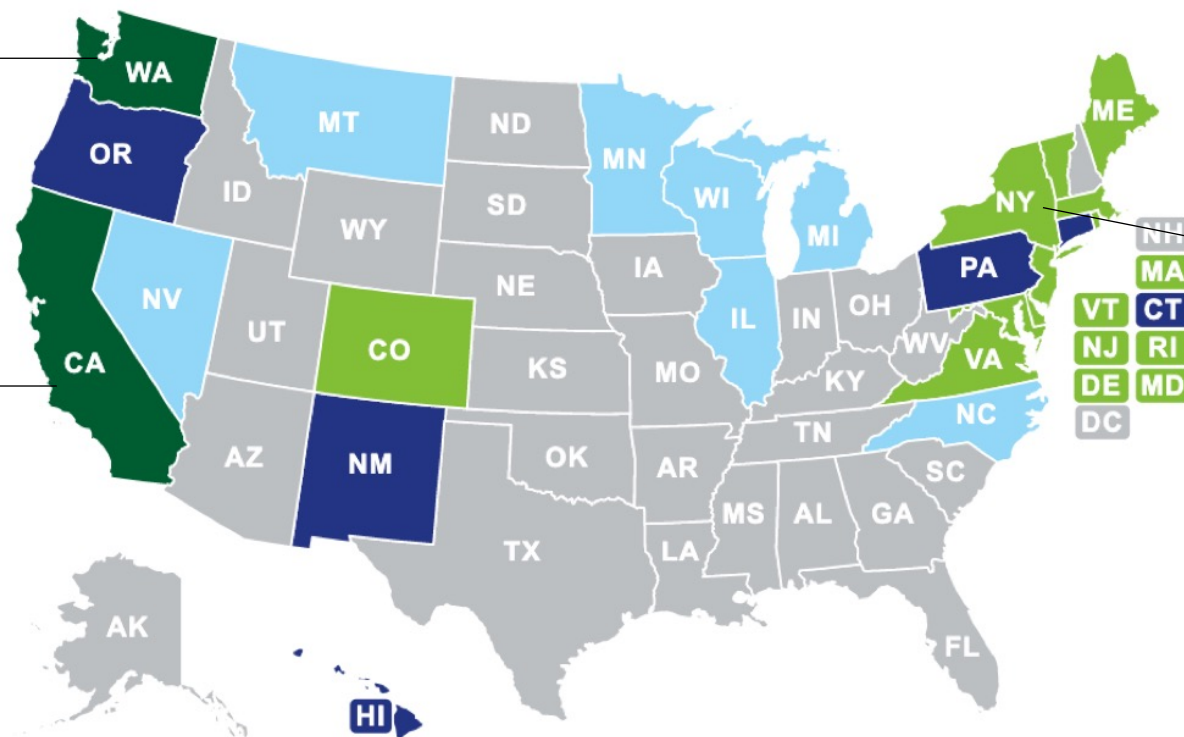
# Regulatory Trends: State Regulations

## Washington

- <150 GWP for New EQUIPMENT

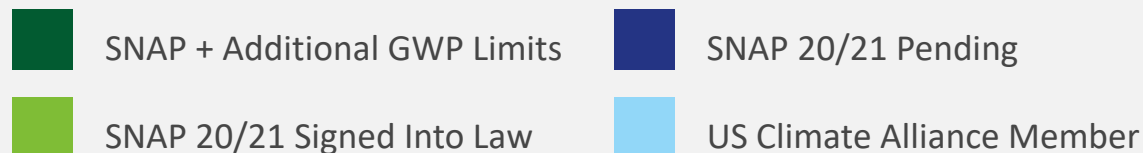
## California

- <150 GWP - New Systems
- <1400 GWP - Existing Systems
- **NEW! SB 1206 – Virgin Refrigerant Ban**



## New York

- <10 GWP for New Systems
- GWP threshold for Existing Systems
- Refrigerant Ban



<https://nasrc.org/hfc-policy>



# Industry Trends: Naturals in New Systems

- National chain commitments to CO2 Transcritical
- Incremental costs = 0% - 25%

## CHALLENGES

- Cost premium for efficient design components
- Supply chain delays
- Servicing and maintenance

## OPPORTUNITIES

- Incentives and standards for efficient design
- Alternative system architectures
- Technician training

# Industry Trends: Challenge of Existing Stores

- Normal replacement schedule
- Regulatory compliance timeline

## CHALLENGES

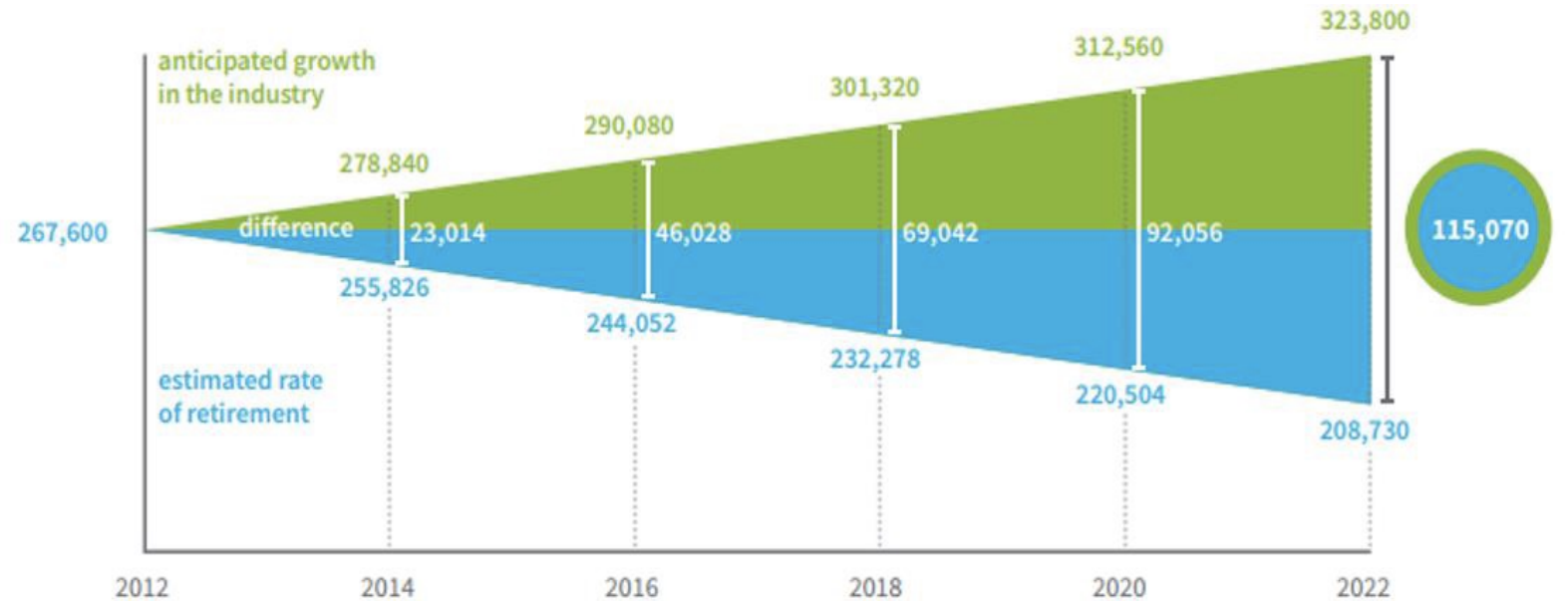
- Cost burden to replace equipment or system
- Supply chain delays
- Labor to complete remodels

## OPPORTUNITIES

- Modular technology solutions
- Leak and charge reduction
- Technician recruiting

# Industry Trends: Growing Technician Gap

- Technician workforce retiring out
- Insufficient technicians entering the HVACR trade
- Who will do the work??



Source: U.S Bureau of Labor Statistics