

# Refrigerant Regulations: Update on State and Federal Rules

# RETAIL COMPLIANCE CENTER

The Retail Compliance Center has a number of resources related to regulations that apply in retail including introductory information as well as detailed reviews of regulations and variations in state requirements.

<https://www.rila.org/retail-compliance-center>



Webinars



Fact Sheets



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# HOUSEKEEPING

## **Everyone is muted upon entry**

- This reduces background noise during the presentations.

## **Recording**

- The slide presentations are being recorded and will be housed on RILA's RCC site for future views.

## **Posing a question/commenting**

- Please use the Q&A box to pose questions or comments
- Questions and comments posed will go directly to the speaker and moderators.
- Questions will be answered after the conclusion of the speaker's presentation.

## **Webinar Feedback Survey**

- Survey launched during Q&A as live poll

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- **Do not** discuss cost information such as production costs, operating costs, or wage and labor rates.
- **Do not** discuss profits or profit margins, including what is a "fair" profit margin.
- **Do not** discuss allocating markets, territories, or customers.
- **Do not** discuss current or future production or purchasing plans, including plans to take facility downtime, production quotas, or limits on output.
- **Do not** discuss refusing to deal with any suppliers, customers, or competitors (or any class or type of suppliers or customers).
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- Never agree on any aspect of future pricing or output.

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# Commercial Refrigeration Regulations & Incentives

NASRC Presentation for RILA

February 25, 2021

# Today's Presenter

## **Morgan Smith**

Manager of Programs & Operations  
North American Sustainable Refrigeration  
Council (NASRC)

Email: [morgan.smith@nasrc.org](mailto:morgan.smith@nasrc.org)



Morgan is the manager of programs and operations at the North American Sustainable Refrigeration Council (NASRC), a nonprofit organization dedicated to advancing natural refrigerants in grocery stores. With a background in sustainability, Morgan has focused her career on aligning sustainable actions with the goals of individuals and businesses.

# North American Sustainable Refrigeration Council (NASRC)

**501c3**

Non-Profit Organization

**130+**

Members

**38,000+**

Food Retail Locations

## Mission

Remove barriers to natural refrigerant adoption to create a more sustainable future for supermarket refrigeration

## Goals

- ▶ Achieve cost parity
- ▶ Drive data transparency
- ▶ Ensure service readiness



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# NASRC End-User Members



# Other NASRC Members

  
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Worldwide Refrigeration

  
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Careful listening. Dynamic solutions.









  
The HVACR Training Authority



  
TUS PRODUCTS









  
ALIANZA EFICAZ EN REFRIGERACION

  
benchmark group

  
Optimized Thermal SYSTEMS

  
AXIOM CLOUD

  
AEROPRES CORPORATION



  
Refrigerant Management Solutions  
A DC ENGINEERING Company

  
Innovation for Customers

  
Ecology Action  
Helping people act now.













# Agenda

- **Refrigerant Regulations** in Commercial Refrigeration
- **Natural Refrigerant** Benefits & Barriers
- **Incentives** to Support the Transition

# Presentation Disclaimer

The information in this presentation is a general summary regarding commercial refrigeration regulations and should not be considered compliance advice. Participants should consult their own compliance expert before taking any action related to the applicable regulations.

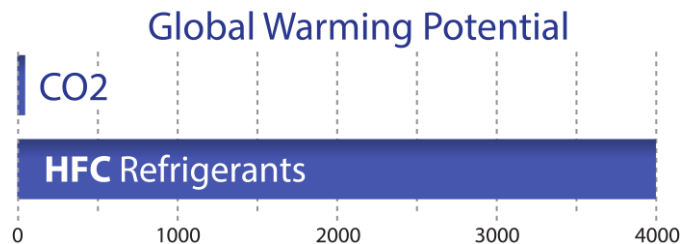
# Refrigerant Regulations



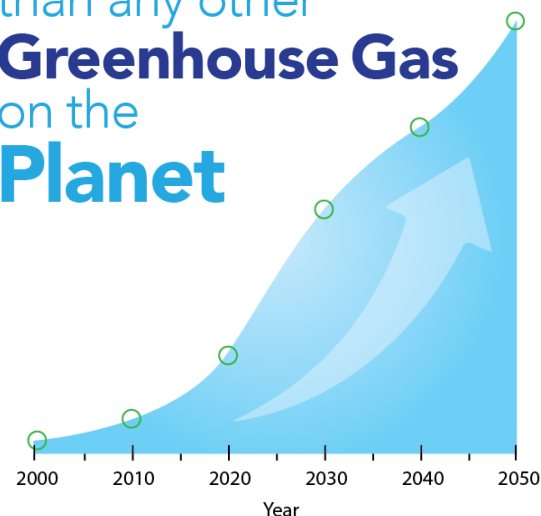
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# Why Regulate Hydrofluorocarbon (HFC) Refrigerants?

**HFCs**  
have up to  
**4,000**  
TIMES MORE  
GLOBAL WARMING  
IMPACT than CO<sub>2</sub>



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



Average  
US Grocery Store  
**25%** Annual  
Leak Rate  
X  
All US Grocery Stores

=



Annual Electricity  
for **12** MILLION  
Homes  
or  
California Households



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# Refrigerant Regulations

## INTERNATIONAL

### Ozone Depleting Substances

Montreal Protocol  
1987

Kigali Amendment  
2016

### Global Warming Potential

US Executive  
Order  
2021

85% Reduction  
HFCs (Kigali)  
2036

Title VI Clean Air Act  
1990

SNAP 20 & 21  
2016

US Climate Alliance  
State Action  
2019

2020  
AIM Act

2036  
85% Reduction  
HFCs (AIM Act)

2017  
Arkema Lawsuit

## UNITED STATES



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# EPA SNAP Rules 20 & 21



## SNAP Rules

Prohibited the use of certain high-GWP HFCs in specific applications

2016

## SNAP Rules Vacated

DC Circuit Court ruled EPA does not have authority to require replacement of HFCs with lower GWP substances

2017

## Prohibitions Restored

SNAP prohibitions on switching from Ozone Depleting Substances (R22) to high-GWP HFCs restored **AND** AIM Act signed

2020

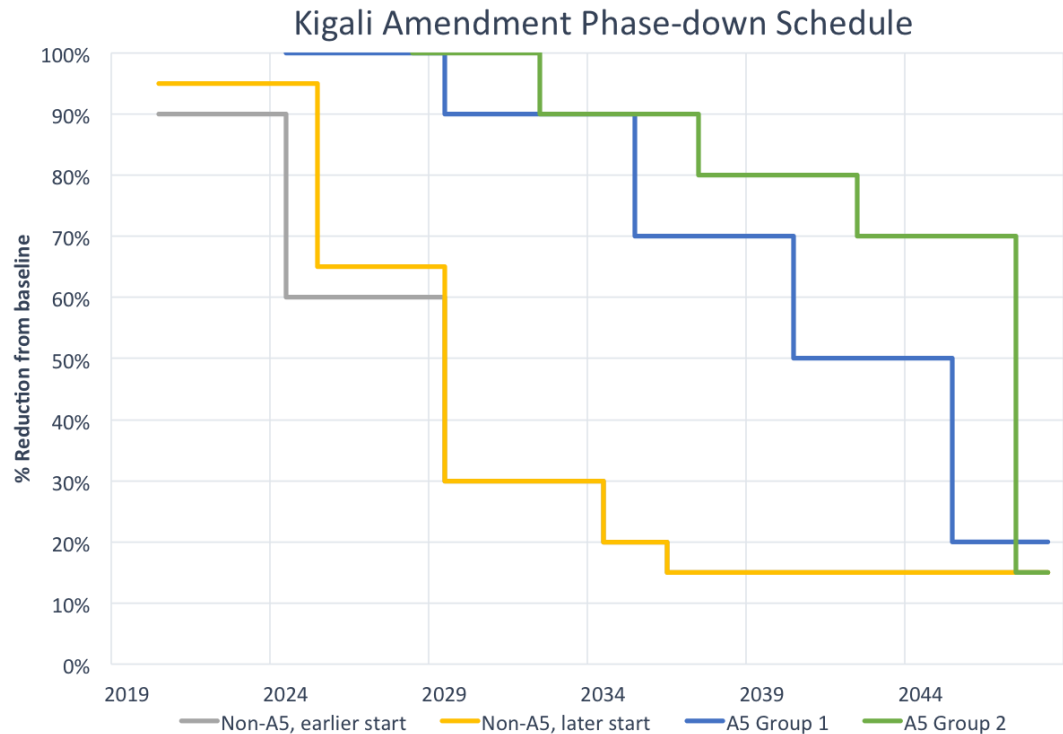
[SNAP 20 Fact Sheet](#)  
[SNAP 21 Fact Sheet](#)



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# The Kigali Amendment to Montreal Protocol Went Into Effect Jan 1, 2019

- Sets phasedown schedule for HFCs
  - Developed countries: 85% reduction by 2036
  - Ratified by 113+ parties
  - No “catch-up” period
- US has not yet ratified
- January 2021: Executive order to prepare to seek senate consent for ratification



# American Innovation & Manufacturing Act (AIM Act)

December 27, 2020 - Signed into law as part of COVID-19 Relief Package

## HFC Phase-Down

- 15-year phase-down that mirrors Kigali
- 85% reduction in the production and consumption of HFCs by 2036
- EPA has 270 days from the date of enactment to finalize the allocations

## SNAP Rules

- Authorizes the EPA to restore SNAP Prohibitions
- Potential to expand prohibitions

## Refrigerant Management

- Permits the EPA to establish regulatory requirements for the management of refrigerants:
  - Refrigerant reclamation
  - Equipment servicing, repair, disposal, or installation





# The Paris Agreement

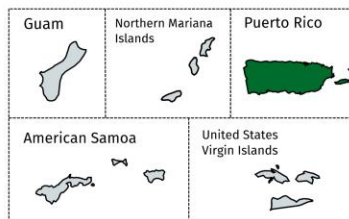


- International agreement aimed to reduce the emission of gasses that contribute to global warming
  - 2016 (April) – Agreement signed
  - 2017 (June) – US President announced intention to withdraw
  - 2019 (Nov) – U.S. begins withdrawal process
  - 2020 (Nov) – U.S. withdrawal takes effect
  - 2021 (Feb) – U.S. officially rejoins agreement

55% of US  
POPULATION

**\$11.7** trillion  
economy

-  US Climate Alliance Member
-  SNAP 20/21 Pending
-  SNAP 20/21 Signed Into Law
-  SNAP + Additional GWP Limits



# US Climate Alliance HFC Regulations

✓ = Established    ✓ = In Progress

HFC Commitments	SNAP Rules 20 & 21	Section 608 Ref. Mgmt.	Additional GWP Limits	Effective Date	Incentive Program
California	✓	✓	✓	Jan 1, 2022	✓
Colorado	✓			Jan 1, 2021	
Connecticut	✓			TBA	
Delaware	✓			Jan 1, 2021	✓
Hawaii	✓			Jan 1, 2021	✓
Maine	✓			Jan 1, 2021	
Maryland	✓			Jan 1, 2021	
Massachusetts	✓			TBA	
New Jersey	✓			July 1, 2020	✓
New York	✓			Jan 1, 2021	
Oregon	✓			Jan 1, 2021	
Pennsylvania	✓			TBA	
Rhode Island	✓			Jan 1, 2021	
Vermont	✓			Jan 1, 2021	
Virginia	✓			July 1, 2021	
Washington	✓	✓	✓	Jan 1, 2020	✓

*\*Last Updated February 11, 2021*

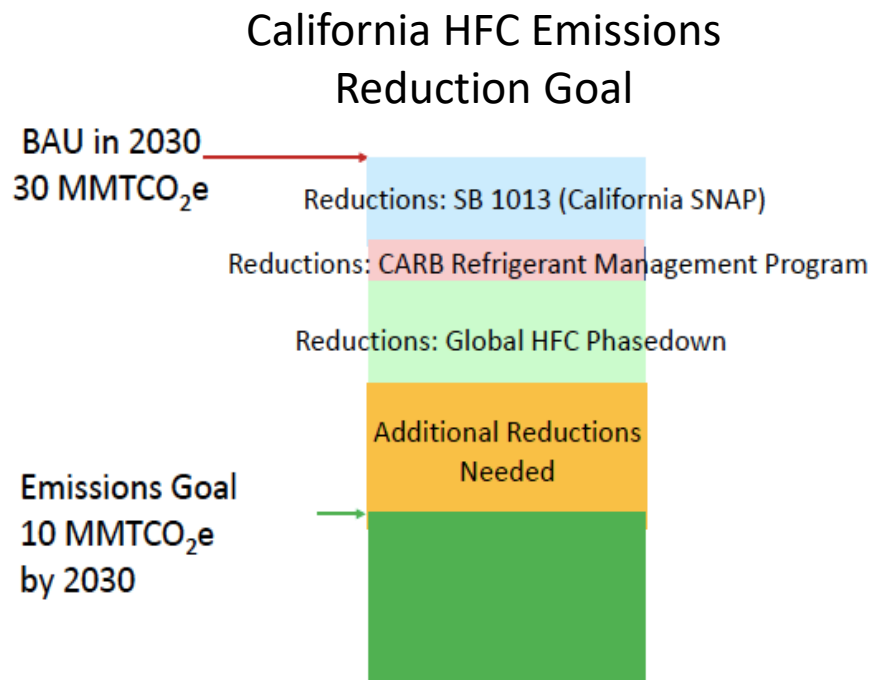
# California HFC Regulations

- **Goals**

- SB 1383: Reduce HFC emissions 40% below 2013 levels by 2030 (over 50% of today's HFC emissions)

- **Regulation**

- SB 1013, Jan 2019
  - SNAP rules
  - Incentive Program
- HFC Reduction Measures, Jan 2022



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# Requirement for New Refrigeration Facilities

- New facilities: 150 GWP Limit (2022)
  - 90%+ emissions reductions per facility
  - Applies to newly constructed facilities; remodeled facilities with new refrigeration systems
  - Applies to all end-use sectors



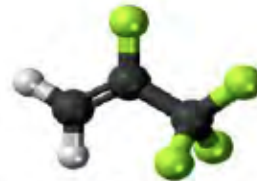
CO<sub>2</sub>



Ammonia



Hydrocarbons



HFOs

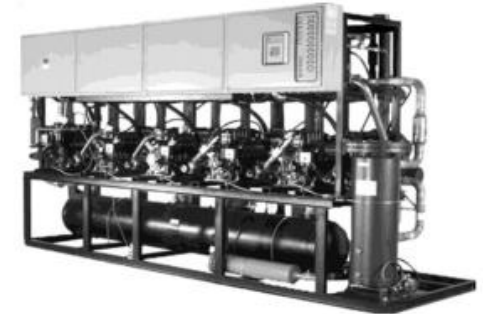


(80+ supermarkets using low-GWP refrigerants in 2019)



# Requirement for Existing Retail Food Facilities

- Company-wide reduction targets for supermarkets and grocery stores (by 2030)
- Cut emissions by reducing GWP and/or refrigerant amount
- Flexibility to plan over 8 to 10 years
- Prepares sector for HFC phasedown



# Existing Facilities Compliance Pathways

## 1. Greenhouse Gas Potential Reduction

$$\text{GHGp} = \Sigma(\text{Charge} \times \text{GWP})$$

## 2. Weighted-Average GWP Reduction

$$\text{WAGWP} = \frac{\Sigma(\text{Charge} \times \text{GWP})}{\Sigma \text{Charge}}$$

- Per-company targets, not per-system or per-store
- Flexible – don't have to retrofit every single store or system
- Plan over 8 – 10 years; Prepares industry for future phase-down or sales ban

Retail Food Facilities	Requirement	Effective Date
Refrigeration Equipment, Stationary (in Existing Facilities)		
Companies owning or operating 20 or more retail food facilities and national supermarket chains operating in California	WAGWP < 2,500 or GHGp reduction ≥ 25% below 2019 levels	January 1, 2026
	WAGWP < 1,400 or GHGp reduction ≥ 55% below 2019 levels	January 1, 2030
Companies owning or operating fewer than 20 retail food facilities	WAGWP < 1,400 or GHGp reduction ≥ 55% below 2019 levels	January 1, 2030

Source: <https://ww2.arb.ca.gov/sites/default/files/2020-07/CARB%20HFC%20Workshop%20Presentation%20%28ADA%29.pdf>



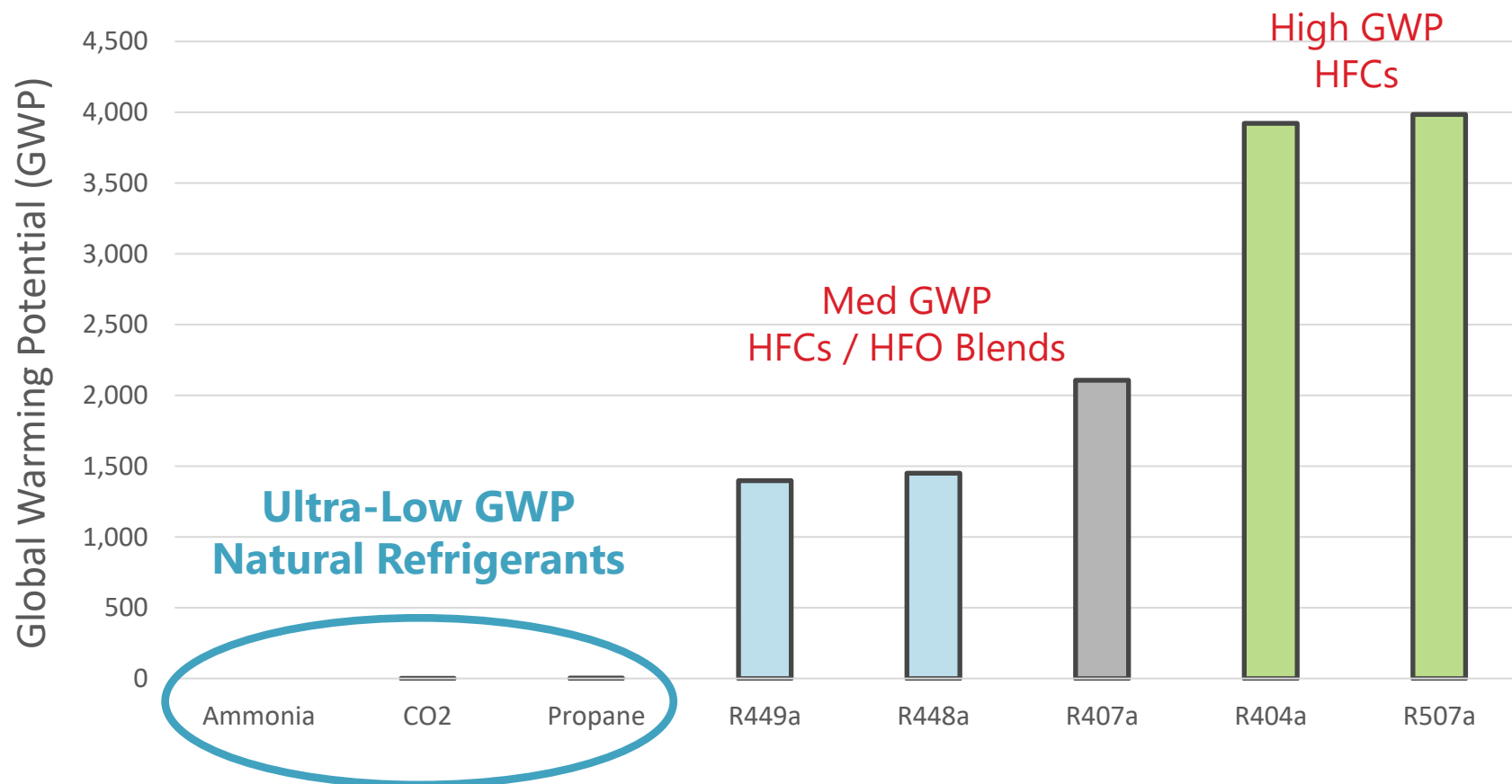
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# Natural Refrigerants



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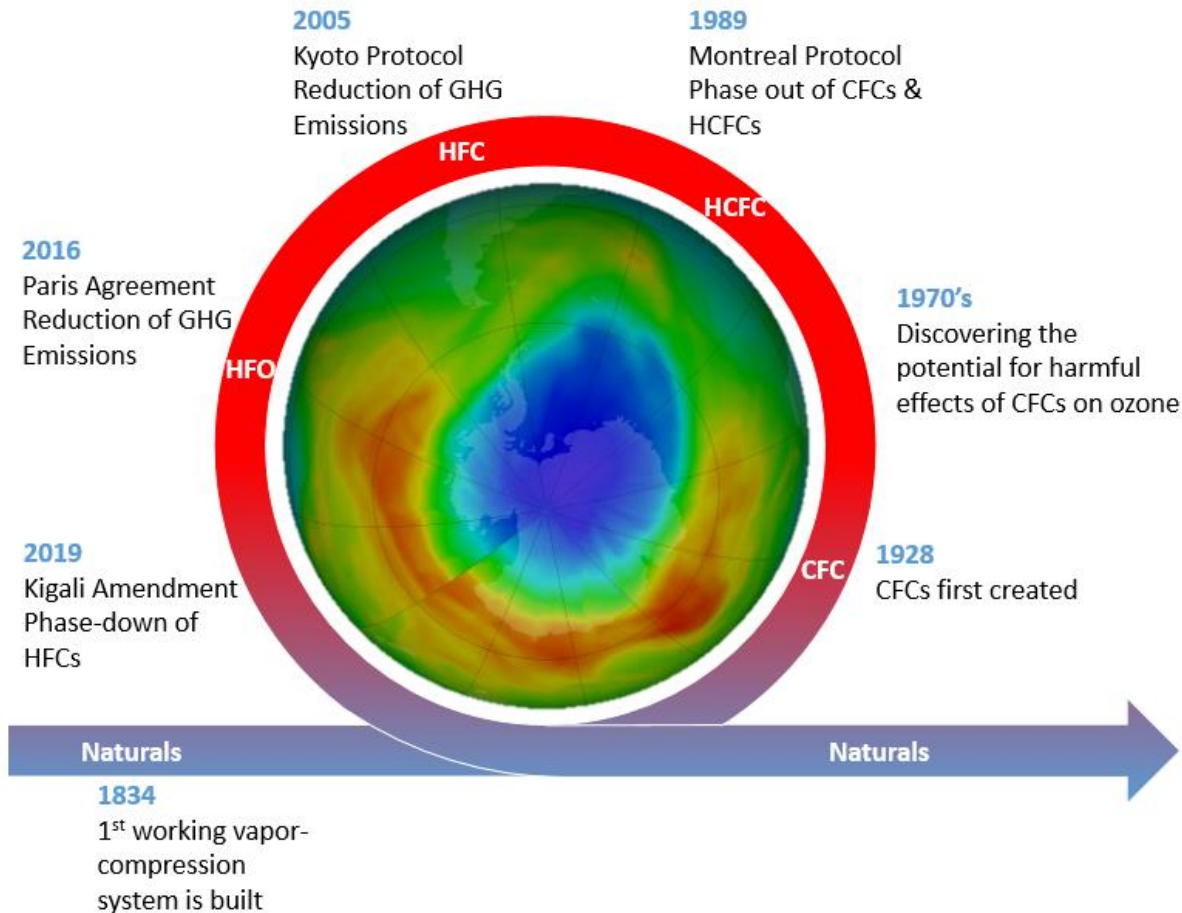
# Refrigerant Options



\*GWP: A direct measure of the amount of heat a GHG traps in the atmosphere



# Natural Refrigerants



- Naturally occurring
- Cannot be patented
- Negligible climate impact

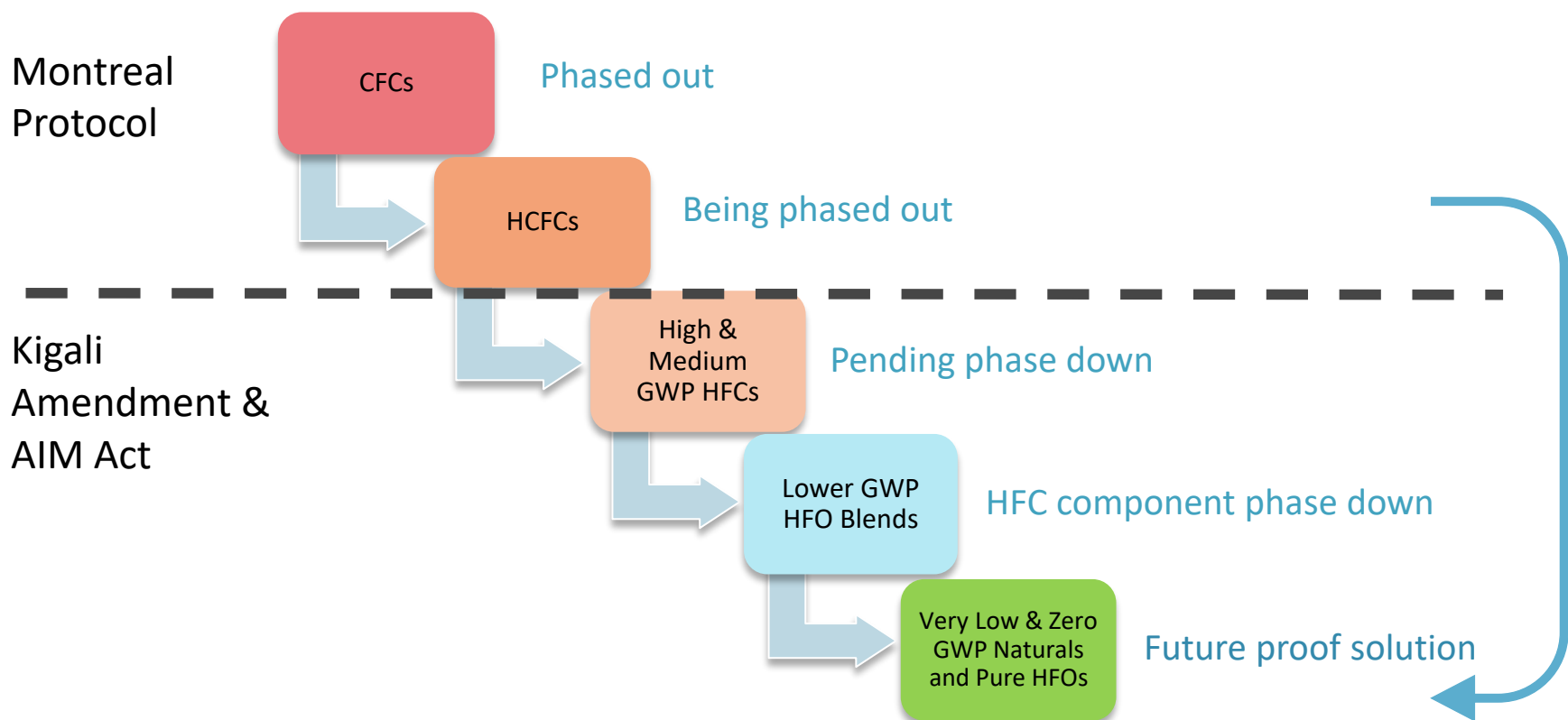
Ammonia  
R-717

Carbon  
Dioxide  
R-744

Hydro  
carbons  
R-290

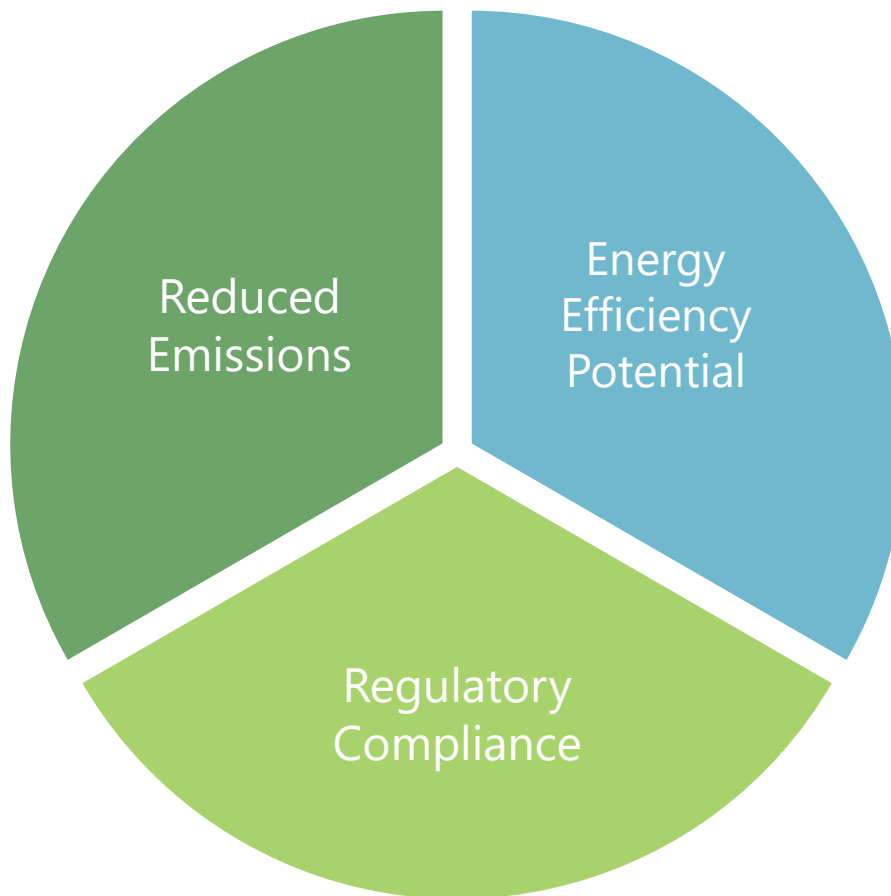


# US Refrigerant Transitions



# Benefits of Natural Refrigerants

- Significant direct GHG emissions reduction
- Improved TEWI



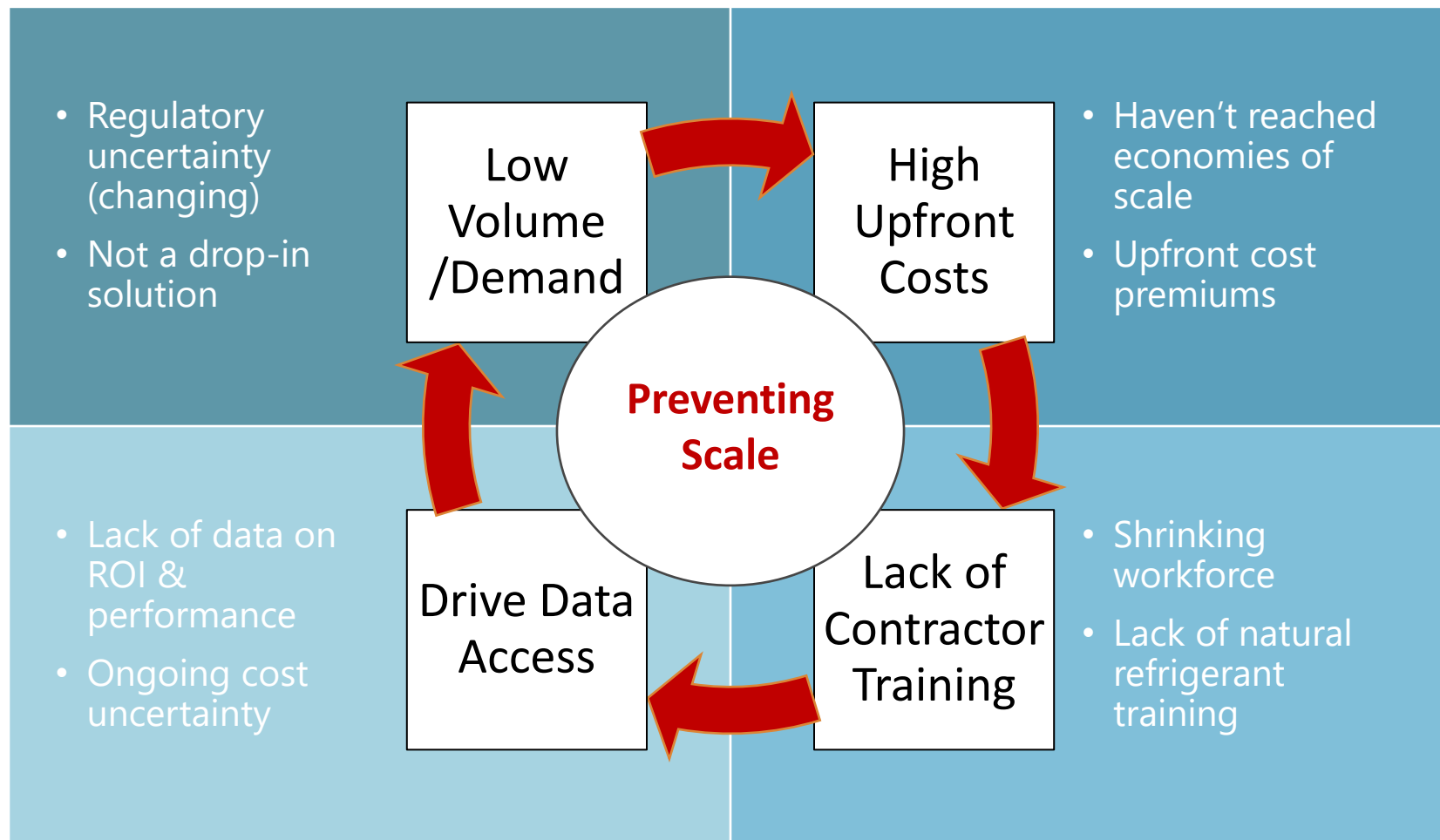
- Energy efficiency & cost savings potential
- Latest innovative technologies

- Exempt from EPA section 608
- Reduced regulatory reporting
- Future-proof



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# Natural Refrigerant Challenges

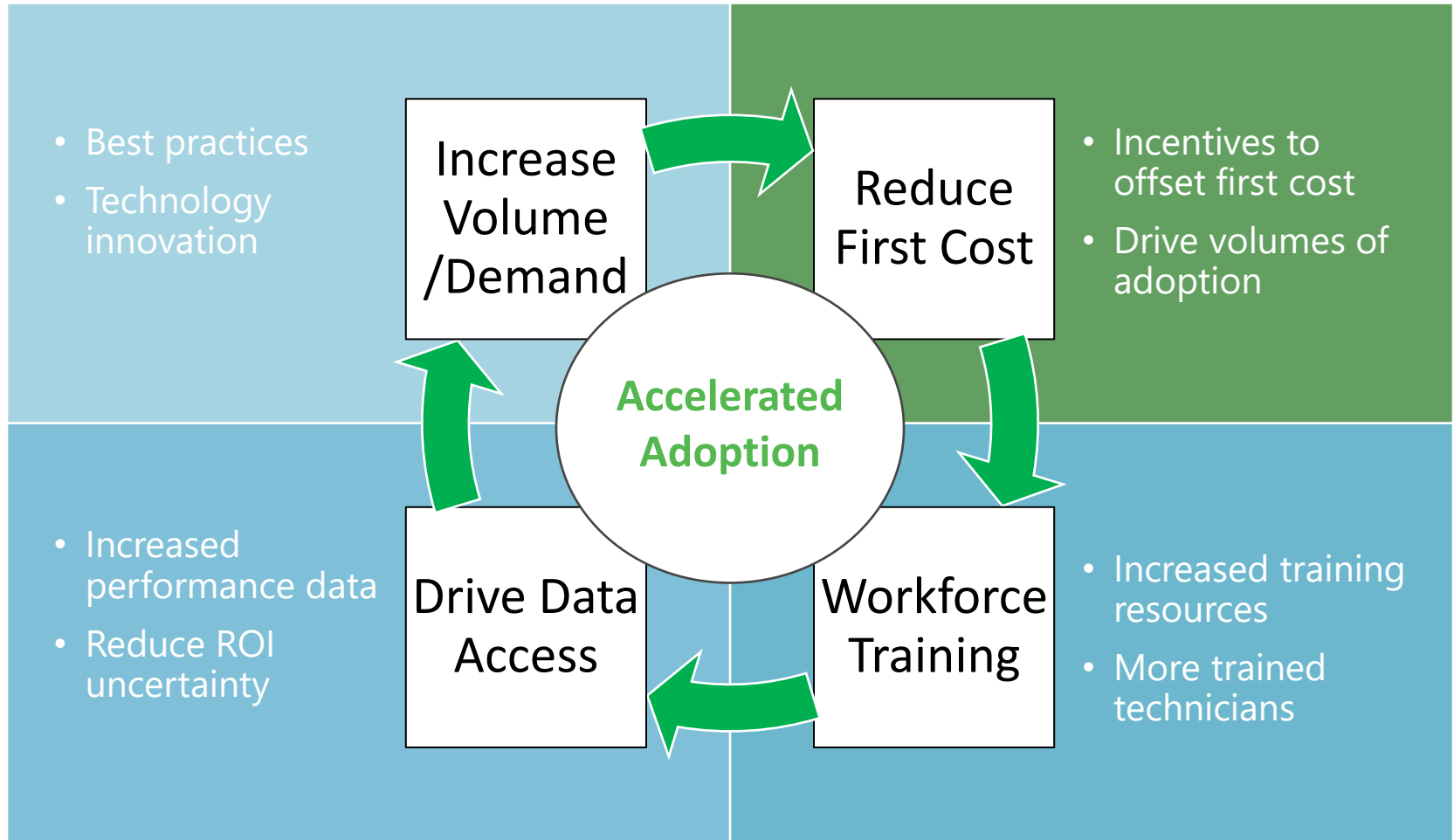


# Incentives & Funding

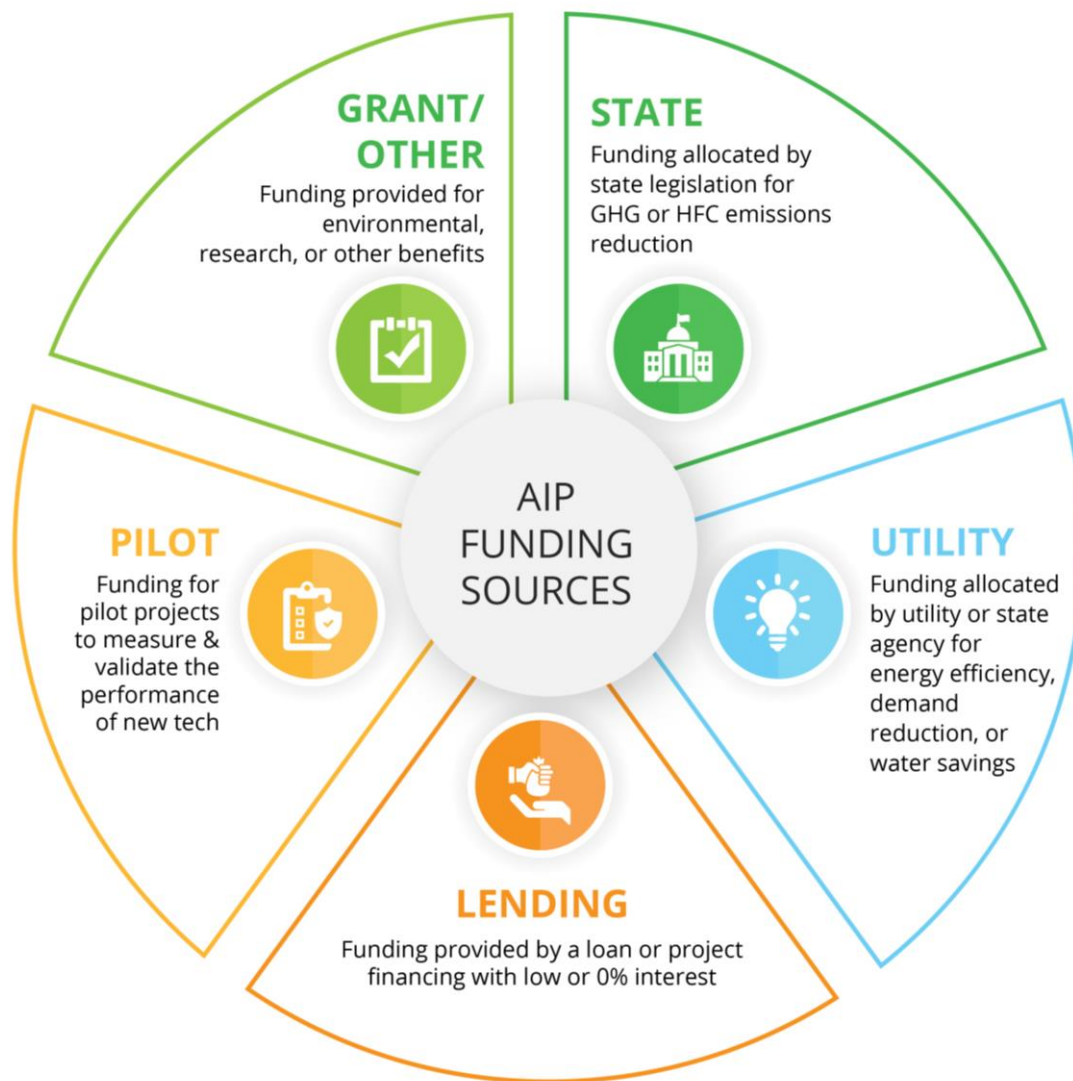


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# Incentives As A Catalyst



# Types of Funding



# Current & Future Opportunities

## Local

- Utility Incentives
- Energy Efficiency Measures
- Decarbonization – Incentives for GHG reduction?

## State

- California F-gas Reduction Incentive Program (Closed)
- Delaware Cool Switch Low-Impact Program

## Federal

- Carbon Offset Credits (NASRC Pilot)
- Tax Credits?

# Key Takeaways

1. HFC Refrigerant Regulations
  - Previously driven by individual state policies
  - Recent federal action will now align US with Kigali amendment phasedown targets
2. Natural refrigerants are a “future proof” solution to regulations, but still have many challenges
3. There is potential for incentives at local utility, state, and federal level to address those challenges and support the transition

# NASRC Resources

- **NASRC Membership (FREE for Retailers)**  
<https://nasrc.org/end-user-membership>
- **NASRC Resource Library**  
<https://nasrc.org/resource-library>
- **Natural Refrigerant Technology Library**  
<https://nasrc.org/nat-ref-tech-lib>
- **Downloadable Contractor Directory**  
<https://nasrc.org/s/Downloadable-Contractor-Directory-lkm7.xls>
- **CO2 Training Resources For Technicians**  
<https://nasrc.org/co2-training-resource-library>
- **Member Directory**  
<https://nasrc.org/member-directory#!directory>
- **Newsletter**  
<http://nasrc.org/newsroom>
- **TEDx Talk: Unpacking the #1 Global Climate Solution**  
<http://nasrc.org/the-hfc-problem>

# Thank you!

**Morgan Smith**

Manager of Programs and Operations

[morgan.smith@nasrc.org](mailto:morgan.smith@nasrc.org)



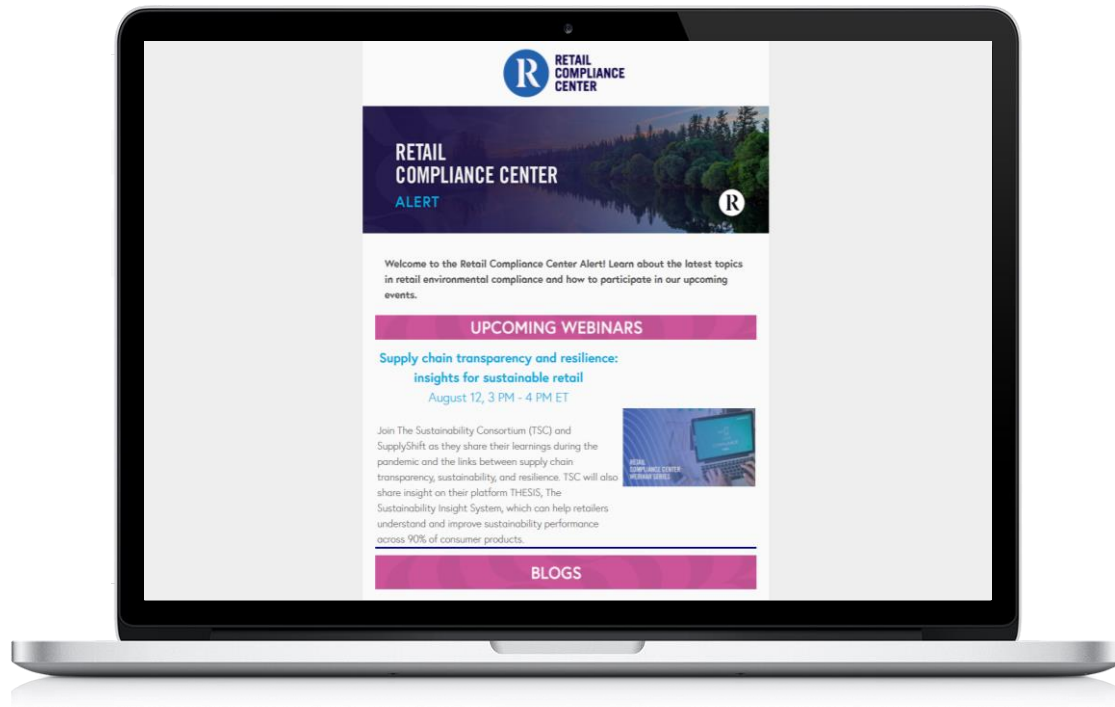
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# QUESTIONS?

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**Tiffin Shewmake**

Vice President, RILA and Executive  
Director, Retail Compliance Center

[Tiffin.Shewmake@rila.org](mailto:Tiffin.Shewmake@rila.org)



**Kaela Martins**

Manager, Environmental Programs  
& Retail Compliance Center

[Kaela.Martins@rila.org](mailto:Kaela.Martins@rila.org)



**Kevin Gibney**

Coordinator, Environmental Programs  
& Retail Compliance Center

[Kevin.Gibney@rila.org](mailto:Kevin.Gibney@rila.org)

# RETAIL COMPLIANCE CENTER – CONTACT US

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