



New Yorkers for Cool Refrigerant Management
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Draft Scoping Plan Comments
NYSERDA
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Sent via email: scopingplan@nyserda.ny.gov

May 5, 2022

Re: Refrigerant Management for Commercial Refrigeration in the Scoping Plan

Dear Members of the Climate Action Council,

New Yorkers for Cool Refrigerant Management:

- applauds the inclusion of refrigerant management in the Scoping Plan
- agrees it is essential for NYS to adopt low-GWP refrigerants in supermarkets as quickly as possible
- agrees DEC should promulgate regulations requiring leak detection for certain commercial refrigeration
- believes the scoping plan should be more detailed and robust in regards to leak detection and leak mitigation for commercial refrigeration
- requests the CAC to provide for both technical and financial assistance in the scoping plan for grocers operating in disadvantaged communities where issues associated with food deserts may be exacerbated by high and rising refrigerant prices
- strongly believes DEC must be allotted additional funding and staffing to adequately carry out these tasks

At New Yorkers for Cool Refrigerant Management, we focus specifically on policies relating to refrigerants, and we would like to address one of the recommendations of the Buildings Advisory Panel related to requiring automatic leak detection in the commercial refrigeration sector. While it is presented as a very minor part of their recommendations, we provide the reasoning behind the need to expedite this action.

Page 147 of the Draft Scoping Plan reads

Update regulations, codes, and standards: As soon as possible, update the relevant New York codes, including the mechanical code, to allow the use of low-GWP alternatives for HFCs. DEC should promulgate regulations requiring reclamation or destruction of refrigerants from appliances at end-of-life, with verification and reporting, *and require leak detection for certain commercial refrigeration*. Provide education and training, technical assistance, and economic support (such as, incentives

to purchase leak detection and reclamation equipment, or compensation for refrigerant reclamation) to aid local industry with this transition. (emphasis added)

The CLCPA requires that targets be established for emissions reductions of each of the different kinds of greenhouse gases. For HFCs, we believe a focus on automatic leak detection in commercial refrigeration will provide the best opportunity to lower these emissions and should be a top priority. According to *Hydrofluorocarbon Emissions Inventory in New York State*, emissions in 2020 from commercial refrigeration, the largest slice of HFC emissions, amounted to 5.7 MMTCO₂e annually, or 26.8% of all HFC emissions and 1.4% of all state-wide emissions.

Over the long term, grocery stores, food storage warehouses, and other facilities that use large-scale refrigeration equipment should be encouraged and incentivized to adopt carbon dioxide, ammonia, and other natural refrigerants as alternatives to HFCs. These natural refrigerants have ultra-low global warming potentials (GWPs) and avoid the long-term pollution pitfalls of next-generation, synthetic HFOs.¹

Given the long operating lifetime of refrigeration equipment, the statewide transition to natural refrigerants will be slow. Most new, large-scale refrigeration equipment sold in the market continues to contain HFCs, further prolonging our dependency on HFCs. In the meantime, policymakers should focus on containing the installed base of HFCs in existing refrigeration equipment through leak detection and refrigerant recovery at equipment end-of-life.

More than 90% of commercial refrigeration emissions occur due to leakage during the working life of the equipment. Leaks are endemic to this equipment, because of the complexity of the systems, the constant vibrations, the high number of connections where things can go wrong, and the compounding effects of aging. These emissions are 1.4% of all state-wide emissions, but reducing these emissions would have a broader impact, because many stores in New York are still using R-22, a potent greenhouse gas (albeit one that is not counted in the current greenhouse gas inventory because it's an HCFC). Moreover, reducing refrigerant leaks boosts energy efficiency, so measures that reduce HFC leaks are doubly rewarded with reduced electricity demand.²

How effective is leak detection equipment at reducing refrigerant leaks? The lowest standard for leak detection is waiting for customers to point out the ice cream is melting. A slightly higher standard is for store personnel to regularly check the temperature of cases or to remotely monitor case temperatures with sensors. But when the temperature of a case has dropped, the refrigerant has already leaked. State-of-the-art leak detection equipment involves air monitors throughout a facility that detect raised levels of refrigerants, or may also use artificial intelligence to track and analyze other data, such as refrigerant levels in condensers and electricity usage for specific segments of the refrigeration equipment. In the United States, the average leak rate for supermarkets is 25%, a number that matches

¹ See [Certain HFCs and HFOs Are in PFAS Group that Five EU Countries Intend to Restrict](#) and [Australian Study Suggests Link Between Elevated R23 Levels and Uptake of HFO-1234ze](#), both published by R744.com.

² See the Direct Expert Testimony of Ali White Regarding Refrigerant Management Programs, as filed on behalf of New Yorkers for Cool Refrigerant Management with the Public Service Commission on May 28, 2021. The testimony provides broad recommendations for promoting energy efficiency in grocery stores, including energy savings through reducing refrigerant leaks. A copy of this file is available at ny4cool.org/our-work.

the EPA's current "acceptable leak rate" for refrigeration equipment – leaks greater than this amount require closer monitoring and reporting, but anything up to that level is considered "acceptable."³

With proper leak detection equipment this number can easily be cut in half, as demonstrated by more than 11,000 supermarkets that voluntarily joined the EPA's GreenChill program between 2007 and 2017.⁴ The current cost of purchasing and installing such a leak detection system is in the range of \$11,000 to \$14,000 for a typical full-size grocery store. These stores use 2,000 to 3,500 pounds of refrigerants in their systems, and reducing leaks by 10%, such as from 25% to 15% or from 20% to 10%, would prevent 200 to 350 pounds of leaks annually. Under the effects of changing policies for HFCs, grocery stores must pay around \$25/pound for R404A, the most commonly used refrigerant (and around \$50/pound for R-22, an HCFC that has been phased out but is still widely used). Using very modest estimates, the reduced refrigerant costs would be enough to pay for a new leak detection system in two or three years at the most. The energy savings from more efficient refrigeration equipment would additionally reimburse the store owner.

Because of its high potency, preventing the release of these 200 to 350 pounds of R-404A has the same climate impact as avoiding emissions of 580 to 1,020 MTCO₂e.⁵ According to the Environmental Protection Agency, the social cost of emitting 200 to 350 pounds of R-404A is \$84 to \$117 million.⁶ Each grocery store adopting automatic leak detection equipment could easily achieve these annual emissions reductions. The national food chains and well-capitalized regional grocery store chains have the capital and the R&D staff who can crunch the numbers and figure out how to roll this out in their stores; moreover, these stores tend to serve parts of New York where population density and economic conditions make them most profitable. But the independent grocers, especially those serving lower-income communities and sparsely populated parts of New York, will probably need financial assistance, such as in the form of 0% interest loans for up to 5 years.

Refrigerant leak detection equipment could be required by 2026 for all commercial refrigeration facilities that had not made the switch to CO₂ or other ultra-low GWP refrigerants. At the same time, utilities in New York state should provide incentive money for stores that reduce their electricity use through these investments. As a cost-effective measure that will quickly reduce refrigerant emissions while also saving energy, requiring leak detection in grocery stores is clearly an action the Climate Action Council should prioritize to help meet the 2030 interim emissions reduction goal.

Special Considerations for Disadvantaged Communities

If we look closely at current developments with refrigerants, we can see plenty of work to be done in disadvantaged communities, which are usually described as suffering the brunt of direct emissions of chemicals. But with HFCs, an important concern is how changing international and national laws are causing huge increases in refrigerant prices, which will continue for many years and could exacerbate food desert issues by driving shops out of business.

³ See [Leaking Havoc](#), by the Environmental Investigation Agency.

⁴ See [EPA GreenChill Progress Report](#) from 2018.

⁵ Calculated using the 20-year GWP for R404 as shown on page A-2 of the Hydrofluorocarbon Emissions Inventory in New York State.

⁶ See the EPA's [Regulatory Impact Analysis for Phasing Down Production and Consumption of Hydrofluorocarbons \(HFCs\)](#). We used the 3.0% discount rate for 2020 to calculate the social cost.

In light of these concerns, we suggest the following investments in improving refrigerant management for commercial refrigeration in disadvantaged communities:

- Train and provide community refrigeration advisors who can provide customized advice on reducing refrigerant leaks and saving energy for food stores in disadvantaged communities.
- Provide incentive money and/or low-cost loans for state-of-the-art refrigeration equipment and refrigerant leak detection equipment.
- Establish a cash-for-clunkers program that removes inefficient second-hand refrigerators and freezers from the market, while capturing old refrigerants.
- Provide cost-share when stores hire qualified refrigeration technicians to perform maintenance and other refrigerant management issues.

In addition, an excellent jobs program in a disadvantaged community would train citizens to provide the service of cleaning refrigerant coils, which has the potential to save lots of energy; services by workers in these job programs can be provided for little or no cost to food stores in disadvantaged communities and could also be offered to other food stores at some cost.

As long as HFCs are in use in New York State, a stable funding source should be easily accessible to grocery stores in disadvantaged communities to facilitate full implementation.

DEC will need sufficient resources to address HFC issues

While the EPA may provide leadership on HFC issues in the years ahead, the politics affecting the EPA are far from certain. Thus, we urge New York to work together with California, Washington, and the other United States Climate Alliance participants to establish robust refrigerant management policies. States can also fill important roles in enforcing, accelerating, and raising the ambition of EPA actions on refrigerants.

We recognize the DEC has many able staff members who have a strong understanding of refrigerant management issues, but at the same time there is a need to hire and train more expertise to implement effective refrigerant management programs. Please fully fund the DEC for this important work.

We thank the Climate Action Council for the opportunity to comment on the Draft Scoping Plan. Enhanced refrigerant management is clearly an early action New York can and must take to reach the CLCPA goals, minimize climate risks in New York, exhibit leadership nationally and globally, and protect our communities.

Regards,



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