NORTH AMERICAN SUSTAINABLE REFRIGERATION COUNCIL



December 14, 2015

California Air Resources Board
1001 I St.
Sacramento, CA

Re: Cap and Trade Auction Proceeds: Second Investment Plan for FY 2016-2019

The North American Sustainable Refrigeration Council (NASRC) is pleased to offer comments on the Second Investment Plan for FY 2016-17 through FY 2018-19. NASRC is an environmental nonprofit focused on supporting food retailers' transition to natural refrigerants and other climate-friendly technology in commercial refrigeration.

In the October 27, 2015 version of the Investment Plan and also in the earlier Draft Concept Paper, the board proposes a low-global warming potential (GWP) incentive program for commercial refrigeration. That is, a program to help California businesses transition out of high-GWP refrigerants into near- or zero-GWP refrigerants. This concept is discussed both in the clean energy and energy efficiency section, and in mention of SB 605 and state requirements to develop a SLCP reduction strategy.

Incentivizing and accelerating the transition to low-GWP refrigerants, particularly in retail food refrigeration, has a multitude of potential benefits. The board acknowledges some of these benefits, but the real impact of such a program is severely underestimated in the current Investment Plan.

**Expected climate benefits** – A low-GWP incentive program for commercial refrigeration helps California meet multiple emissions reductions goals. By replacing (or preventing new installation of) high-GWP gases, this program will reduce and prevent emissions of short-lived climate pollutants, thereby helping meet the goals of SB 605. In addition, many refrigeration technologies that use low GWP refrigerants are also more energy efficient than traditional systems, providing a reduction of direct greenhouse gas emissions from refrigerants and a reduction of indirect emissions through reduced energy use, reducing the overall climate footprint of each store to meet the larger greenhouse gas emissions reductions goals of AB32.

A typical food retail store today uses between 2,000 and 4,000 pounds of a refrigerant that has a GWP of 3,920. Natural refrigerants, which have a GWP of about one, reduce the direct greenhouse gas impact of a typical store's refrigerant from 7 to 15 million pounds of CO2 equivalent to about 2,000 to 4,000 pounds CO2eq.

| Direct GHG Impact of Refrigerant Used in Supermarket Refrigeration Systems | Today's Typical Supermarket* | Natural Refrigerant Supermarket** |
|---|---|---|
| Metric Tons of CO2 equivalent | 3,558 - 7,115 | 0.9 - 1.8 |
| Equivalent number of homes' electricity use for one year | 489 - 979 | 0.13 - .25 |
| Pounds of coal burned | 3,821,248 - 7,642,569 | 974 - 1,949 |
| Incandescent lamps switched to CFLs | 93,058 - 186,116 | 23.7 - 47.5 |

*Today's typical supermarket uses between 2,000 and 4,000 pounds of R-404A (GWP 3,920); ** A transcritical CO2 system uses between 2,000 and 4,000 pounds of R-744 (GWP 1); All equivalencies taken from EPA's greenhouse gas equivalencies calculator.

The increased initial equipment cost is the main barrier to widespread adoption of these beneficial technologies. The government can influence the uptake of these technologies by offering incentives that help pay some of this higher equipment cost. Natural refrigerant technologies have the potential to deliver significant energy efficiency benefits compared to the typical refrigeration technology used in supermarkets. Even energy efficiency improvements of just 10% in a typical

supermarket's refrigeration system translate into reductions of more than 100,000 kWh per year, per store.

| Today's Typical Supermarket | | | |
|---|---|---|---|
| Average Annual Electricity Use per Store* (kWh) | 2,346,000 | | |
| Percentage of Total Store Electricity Use for Refrigeration | 50% (1,173,000 kWh) | | |
| Possible Electricity Savings vs. Current | 10% | 20% | 30% |
| Estimated Electricity Savings in kWh | 117,300 | 234,600 | 351,900 |
| Equivalent homes' electricity use for one year** | 11 | 22 | 33 |

*EPA's GreenChill Partnership: Average Supermarket's Greenhouse Gas Impacts - Refrigeration Leaks Compared to Electricity Consumption;**EPA's greenhouse gas equivalency calculator.

**The importance of timing** – As the board acknowledges**,** the 2020 phaseout of HCFC-22 is fast approaching. According to data from the ARB's own Refrigerant Management Program, at least half of the registered facilities in CA are still using HCFC-22.

Our preliminary discussions with store representatives indicate that HCFC-22 refrigeration systems are being converted to high-GWP refrigerants instead of low-GWP refrigerants, primarily due to cost constraints. While stores would like to choose a very low-GWP technology for any stores slated for transition out of HCFC-22, the cost is simply to high at this point in time. If we take action now, and help stores transition to low-GWP technology we prevent the installation of high-GWP systems, and further the transition to low-GWP systems.

**Transition timeline and economies of scale** - A well-funded low-GWP incentive program in 2016-2019 could catalyze enough rapid transition to shift the course of the entire commercial refrigeration industry. Efficient and effective funding here in California will quickly help bring down equipment and installation costs, will provide meaningful data as to the benefits of natural refrigeration systems and will provide ample examples for end-users across the nation. As installation companies and service technicians gain experience with these systems, a growing installed

base of low-GWP equipment will spur further investment in training and education for these types of systems.

**Co-benefits** – An incentive program would help California small business, in that smaller stores suffer from a lack of available capital to carry out a refrigerant retrofit to transition out of HCFCs or high-GWP HFCs. But perhaps even more valuable is the impact such a program could have on disadvantaged communities.

New stores using natural refrigerants will bring fresh produce to disadvantaged communities, many of which are also food deserts[1]. A successful incentive program will help encourage store installation in these underserved food deserts. A new store means new jobs, with direct economic (and health) benefits to these disadvantaged communities. We can foster job creation by promoting in-state greenhouse gas emission reduction projects carried out by California installation and servicing companies. We can also create new jobs working in stores that open in disadvantaged communities.

Right now there are many relevant challenges facing supermarkets with respect to their refrigeration management plans and how they can best serve the needs of their communities. NASRC believes that these challenges can best be met with a incentive program to support transition to low-GWP commercial refrigeration technology. By addressing these challenges now, in 2016, we can shift the dynamics of an entire market. If California commits to being a leader in the transition out of fluorocarbon refrigerants, and into low-GWP alternatives, this state can affect the outcome of the entire supermarket industry nation-wide. These is the potential to define the path forward for all new stores, as well as the refrigerant future for the 35,000 existing stores across the U.S.

Sincerely,

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[1] According to the United States Department of Agriculture, "Food deserts are defined as urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, these communities may have no food access or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options. The lack of access contributes to a poor diet and can lead to higher levels of obesity and other diet-related diseases, such as diabetes and heart disease."
http://apps.ams.usda.gov/fooddeserts/fooddeserts.aspx accessed August 20, 2015.