

September 1, 2015

Shelby Livingston, Branch Chief  
Climate Investments  
California Air Resources Board  
1001 I St  
PO Box 2815  
Sacramento, California 95812  
Email: slivings@arb.ca.gov

**RE: Comments by Honeywell International Inc. on the July, 2015 Cap-and-Trade Auction Proceeds Second Investment Plan (Draft Concepts for Public Discussion)**

Dear Ms. Livingston,

Honeywell International Inc. (“Honeywell”) submits these comments in response to the July, 2015 paper issued by the California Air Resources Board (ARB) titled, Cap-and-Trade Auction Proceeds Second Investment Plan (Draft Concepts for Public Discussion) (“Proposal”). We appreciate the opportunity to provide additional input into the process to craft an investment plan that supports the transition to low global warming potential (GWP) refrigerant systems.

**I. BACKGROUND**

Honeywell is a global leader in providing energy efficient technologies and innovations that can help the world solve its energy and environmental challenges. We are a recognized leading innovator in the development of environmentally preferable fluorocarbons for use as refrigerants, foam blowing agents, solvents, propellants, and other uses. Since the 1990s, we have helped businesses replace ozone-depleting substances in these applications with alternatives that are non-ozone depleting and in certain cases more energy efficient.

Honeywell is a strong supporter of U.S. EPA’s commitment to reducing the use of substances with a high GWP and the use of its Significant New Alternatives Policy (SNAP) program to transition the industry to low-GWP alternatives. We have been working diligently to develop and commercialize technologies to further those goals. Honeywell has invested over \$500 million thus far and projects investing another \$400 million in its new platform of low- and lower-GWP hydrofluoroolefin (HFO) and HFO blend compounds for use by equipment and product manufacturers worldwide.

We also strongly support and have been participating in ARB’s process to develop a strategy to address short-lived climate pollutants, including hydrofluorocarbons (HFCs). On June 12, 2015 we provided extensive comments on ARB’s “Short-Lived Climate Pollutant Reduction Strategy” Concept Paper.

We continue to work with original equipment manufacturers (OEMs) and end users to evaluate and implement use of lower-GWP refrigerants in their products and equipment. ARB’s

proposed strategy, the U.S. EPA regulations under the SNAP Program, Canada’s proposed HFC regulations, and the European Union’s F-gas Regulation have helped lead companies to commercially adopt new HFO and HFO blend compounds that will yield substantial environmental benefits. ARB’s leadership on incentive programs for low-GWP refrigerant systems can drive more rapid adoption of these technologies and accelerate the environmental benefits.

## II. COMMENTS

Honeywell agrees with ARB that, “Offering support to California businesses to install or upgrade to a low-GWP refrigerant system can provide significant reductions of F-gas emissions at a very low cost. These systems may be more efficient than older systems that use high-GWP refrigerants, also reducing energy use and electricity bills.”<sup>1</sup> Low-GWP and reduced-GWP refrigerant solutions are commercially available and could be adopted much more widely with additional incentive programs.

### A. *Commercial Air Conditioning – Chillers*

In the commercial air conditioning sector, there are multiple low-GWP refrigerants being adopted for chillers with GWPs of 1 or less. There are also additional reduced-GWP alternatives (GWP of less than 750) that are near drop-in replacements compared to currently used substances such as HFC-134a (GWP of 1430). Replacing older models of chillers that currently use high-GWP and ozone-depleting chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants with low-GWP alternatives yields a two-fold benefit for the environment. Such replacements directly reduce emissions of high-GWP refrigerants and also decrease greenhouse gas emissions because the latest chillers can reduce energy consumption by about 50%, compared to the efficiency of many of the chillers that were installed decades ago.

### B. *Centralized Refrigeration Systems – Commercial and Industrial Refrigeration Central Systems*

For commercial and industrial refrigeration applications, there are multiple lower-GWP and near drop-in replacements for existing widely used higher-GWP HFC blends such as R-404A and R-507. Given that alternatives are available today, additional incentives could accelerate the rate of retrofit or replacement of centralized refrigeration systems in California, resulting in significant environmental benefits. In addition to eliminating emissions of high-GWP substances, lower-GWP refrigerant systems offer up to 10% higher energy efficiency over currently-used refrigerants, resulting in reduced electricity usage and therefore further emissions reductions and cost savings.

While it is true that costly equipment changes are not necessary in order to retrofit equipment to the available lower-GWP alternatives, an average supermarket may spend up to \$30,000 in contractor service fees and other costs to implement a retrofit. Providing an incentive to lessen the cost of the retrofit would help supermarket store owners make the transition.

---

<sup>1</sup> Proposal at 15.

*C. Incentives for Low-GWP Foam Insulation*

Honeywell recommends that the proposed incentives be extended to foam (extruded polystyrene (XPS) and polyurethane (PU)) insulation applications where HFCs are still being used, such as in appliances and building construction. Non-HFC solutions with high energy efficiency have been available in the U.S. for over a year and are being adopted globally. These foams enable California to reach higher energy efficiency targets in construction and refrigeration. Providing incentives would accelerate the adoption of low-GWP alternatives in California, while supporting the state's energy efficiency goals.

**III. CONCLUSION**

Thank you for this opportunity to share our comments on ARB's development of an investment plan that includes incentives for accelerating adoption of low-GWP refrigerants. Honeywell strongly supports ARB's proposal. If you have any further questions, please do not hesitate to contact Amy Chiang at [Amy.Chiang@honeywell.com](mailto:Amy.Chiang@honeywell.com) or Dave Stirpe at [David.Stirpe@honeywell.com](mailto:David.Stirpe@honeywell.com).