FHP Manufacturing
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December 04, 2020

California Environmental Protection Agency
California Air Resources Board (CARB)
1001 I Street
P.O. Box 2815
Sacramento, California 95814

Subject: Comments Regarding California Air Resources Board Draft Proposed Regulation: Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning, and Other End Uses

FHP Manufacturing, a joint venture of Robert Bosch LLC and Carrier Corporation, is a leading producer of water source and geothermal heat pumps founded in 1970 in Pompano Beach, FL. FHP has been on the forefront of developing innovative technology, helping to make geothermal and water source heat pumps a viable option for today's homes and commercial businesses. FHP engineers work to incorporate the best available technology into every model, with the goal of reducing costs for heating and cooling while increasing environmental responsibility.

The special economic conditions faced by OEMs during the pandemic has affected our ability to meet the demands of CARB regulatory changes to help combat environmental effects of Global Climate. These impacts have been seen in reduced worker efficiency and in reduced worker availability. The Entire team for this type of project has traditionally been co-located to improve project team collaboration and effectiveness during these types of projects. This has been eliminated as part of the development process and while we have tried to utilize many virtual methods of collaboration, they have fallen short of the effectiveness seen on past projects.

In addition to these issues FHP manufacturing, like many other businesses, have seen the capital available to devote to product development reduced from original plans. This has reduced the number of available personnel to devote to the development teams required to accomplish this massive change in our product portfolio. Changing refrigerant requires us to change every major component in an HVAC system, forcing a complete redesign of our product offering. Further impeding our ability to respond to the demands to meet the 1/1/2023 deadlines.

We would echo some of the comments made by AHRI related to ability of the building codes and safety codes to fully harmonize with this new requirement. Today's available refrigerant technology to replace R410A, used in most stationary air conditioning equipment, that meet <750 GWP, are A2L refrigerants. These refrigerants have low levels of additional flammability over current R410A, an A1 refrigerant. The slight increase in flammability has not been fully implemented in building codes in California nor the rest of the country. These codes are crucial to ensure that products being designed are acceptable to all stake holders and our end customers.

For these reasons, we appreciate CARBs proposed revisions to the current ruling requiring 1/1/2023 start of the <750 GWP requirement for stationary air conditioning equipment. The extension to 1/1/2025, with

aa additional compliance pathway should provide us time to recover and respond with product designs to meet this important goal. This extension will also provide much needed time to allow State and local building and safety codes to be updated for the use of A2L refrigerants.

We further acknowledge that CARB is required to provide reduce Global CO2 emissions per California law. The compromise CARB has proposed, " *manufacturer is able to offset the CO2 equivalent amount of refrigerant equal to the initial refrigerant charge size through the purchase and use of reclaimed refrigerant in equipment placed on the market in California during the delay* " is a good start to ensure that CARB can meet these goals for CO2 reduction required by California legislation and allow much needed time to develop the new units. However, use of reclaimed recycled refrigerants alone may not be enough to allow California's total refrigerant needs to be met. Studies have shown that there may not be enough supply of reclaimed/recycled refrigerant to meet the needs of California.

This also carries with it a significant burden to ensure the units being shipped into California are charged with Reclaimed refrigerant. We would question the need for the units to be shipped to California to gain the credit for its use. California law requires that there be a reduction in GHG emissions equal to the values represented by stationary air conditioning equipment having refrigerants that have a lifetime CO2 emissions equivalent to a unit that was charged with 750 GWP refrigerant.

It is, with this goal in mind, that we offer a few comments on overall impact of these processes, and additional proposals that could provide the same or better overall results for reducing the total CO2 emissions.

1. The proposal limits the offset benefits to only those seen in California. Example of this is that a company would be required to document that the use of recycled refrigerants be limited to units being shipped into California. We assert that the goal in the legislation was to ensure California reduce its negative impact on the Global Environment, by reducing the CO2 emission attributable to California. To accomplish this you need only document that, as a result of California's laws and regulations, you affect a reduction of total CO2 released to the Global atmosphere. Therefore, a company that can document increased use of recycled refrigerants due to CARB rulings would accomplish the same goal. Furthermore, the same company documenting recovery and destruction of R410A refrigerants should get same credit no matter the source or location of the refrigerant prior to its recovery or destruction. The goal is to reduce CO2 emissions to the atmosphere. The Global Environment and California is affected the same from CO2 emission regardless of the location

   The tracking effort to ensure every unit that uses recycled refrigerants is shipped to California is a large unnecessary hurdle if the goal is to reduce total CO2 emissions. We could track Recycled refrigerant use and report that information to CARB or other regulatory bodies in California, but the burden to ensure that units that received the recycled refrigerant was the ones supplied to California would be undue burden and in our estimation not in the spirit of the law to reduce CO2 emission impacts. Same is true for the recovery and destruction of the refrigerants. The reduction in CO2 emissions is the same no matter where the products are installed prior to recovery.

2. We would also like CARB to consider, if the goal is to get to 750 GWP in order to meet the projected CO2 emissions due to stationary air condition products, allowing credit for companies that go well below this limit. This can be done by giving credit during the 2023 – 2030 time frame for products that utilize refrigerants that are below 750 GWP. In simple math we propose that for every unit put in commerce into California beyond 1/1/2023 that there is a CO2 ***liability*** equal to delta GWP of the refrigerants used to 750. If unit used R410A, GWP = 2088, that value would be 1338 x mass of refrigerant. Then when revised units, with lower GWP, are introduced in the market. From that point you provide a credit against that liability. The ***credit*** is equal to Delta below 750 GWP and the final designed refrigerant GWP. If the new unit was designed with R32, GWP 675, the credit would be 75 x mass of the refrigerant used in new units put into commerce in from 2023 thru 2030.

This will have the added effect of encouraging manufacturers to go beyond the 750 GWP limits and designing equipment with other refrigerants that are as low as economically effective. This reduced value below 750 GWP will have a much longer positive affect on the environment. Developing this type of credit could help reduce longer term reductions in CO2 emissions.

This also provides incentives for manufacturers to implement new designs as soon as possible to allow them to start gaining back credits to offset the liabilities that start in 1/1/2023.

In summary, we would like to say that FHP manufacturing is in full agreement with the proposal to allow implementation of stationary air conditioner manufacturers and code bodies until 1/1/2025 to ensure designs are all harmonized with the latest design requirements A2L refrigerants.
We would further request that CARB review the comments herein and provide for offset for units shipped after 1/1/2023 that might have GWP > 750 by three methods;

1. Documented use of recycled refrigerants regardless of where the recycled refrigerant is used.
2. Ability to document recovery and destruction of refrigerants regardless of unit location and destruction location
3. Use of documented CO2 impact offsets by forcing accounting of the units sold between 1/1/2023 thru 1/1/2025 that have a Liability = to GWP above 750 and the credit for recycled refrigerant use, destroyed refrigerants, and/or equivalent for CO2 saved for units sold from 2023 thru 2030 that are below 750 GWP. All based on CO2 equivalent for total of the mass of refrigerants, to offset liabilities incurred for units placed in commerce into California.

Best regards,

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