Office of Senate Floor Analyses
(916) 651-1520 Fax: (916) 327-4478

THIRD READING

Bill No: SB 1206
Author: Skinner (D)
Amended: 5/19/22
Vote: 21

SENATE ENVIRONMENTAL QUALITY COMMITTEE: 5-2, 3/28/22
AYES: Allen, Gonzalez, Skinner, Stern, Wieckowski
NOES: Bates, Dahle

SENATE APPROPRIATIONS COMMITTEE: 5-2, 5/19/22
AYES: Portantino, Bradford, Kamlager, Laird, Wieckowski
NOES: Bates, Jones

SUBJECT: Hydrofluorocarbon gases: sale or distribution

SOURCE: Author

DIGEST: This bill prohibits the sale or distribution of bulk hydrofluorocarbons (HFCs) that exceed global warming potential (GWP) limits of 1,400 by 2025 and 750 by 2030 and requires the Air Resources Board (ARB) to initiate rulemaking for the adoption of low and ultra-low GWP refrigerant alternatives in California in sectors where it is practicable. This bill also requires ARB to submit a proposal to the Legislature by January 1, 2024, specifying how to transition the state's economy away from HFCs and to low or ultra-low GWP alternatives by 2035.

ANALYSIS: Existing federal law directs the U.S. Environmental Protection Agency to address HFC emissions by phasing down the production and consumption of HFCs by 85% by 2036.

Existing state law:

1) Establishes the Air Resources Board (ARB) as the air pollution control agency in California and requires ARB, among other things, to control emissions from a wide array of mobile sources and coordinate, encourage, and review the

efforts of all levels of government as they affect air quality. (Health and Safety Code (HSC) §39500 et seq.)

2) Requires ARB to achieve reductions in statewide emissions of methane and HFCs by 40% below 2013 levels by 2030. (HSC §39730.5)

3) Prohibits the sale, lease, rent, or otherwise entering into commerce of any equipment that uses a federally prohibited refrigerant or a refrigerant prohibited by the air board due to risk to human health or the environment. (HSC §39734)

4) Requires the Public Utilities Commission (PUC) to consider developing a strategy for including low-GWP refrigerants in equipment funded by the energy efficiency programs overseen by the PUC and identify opportunities to assess the energy efficiency performance for GWP alternatives for fluorinated gas-based appliances and equipment. (Public Resources Code (PRC) §76002-76004)

5) Establishes the Fluorinated Gasses Emission Reduction Incentive Program to be administered by ARB to promote the adoption of low-GWP refrigerant technologies. (§PRC 76008)

This bill:

1) Defines, for the purpose of this legislation:

   a) "Bulk" as a regulated substance of any amount that is in a container for the transportation or storage of that substance such as cylinders, drums, ISO tanks, and small cans. A regulated substance contained in a manufactured product such as an appliance, an aerosol can, or a foam is not a bulk substance;
   b) "Hydrofluorocarbons" as fluorinated gases used primarily as refrigerants in refrigeration, air-conditioning equipment, foam expansion agents, aerosol propellants, solvents, and fire suppressants;
   c) "Global warming potential" as a measure of how much energy the emissions of one ton of gas will absorb over a given period of time relative to the emissions of one ton of carbon dioxide. The specific values for a substance are those published by the Intergovernmental Panel on Climate Change in its Fourth or Fifth Assessment Report, or as determined by ARB in a regulation;
   d) "Low GWP" as GWP of less than 150; and

e) "Ultra-low GWP" as GWP of less than 10.

2) Prohibits the sale, distribution, or entering into state commerce bulk HFCs or bulk blends containing HFCs that exceed:

   a) GWP of 2,200 after January 1, 2025;
   b) GWP of 1,400 after January 1, 2030; and
   c) GWP of 750 after January 1, 2033.

3) Empowers ARB to establish maximum allowable GWP levels for HFCs entered into commerce in the state that are lower than the targets in the bill.

4) Exempts reclaimed HFCs from the prohibition.

5) Requires that beginning January 1, 2025, any HFCs used to replenish leaks or otherwise service equipment owned operated by the state must be reclaimed.

6) Requires ARB to initiate rulemaking for requiring deadlines for adoption of low and ultra-low alternatives to HFCs in all sectors where it is practicable for entities in the sector to comply with the requirement.

7) Requires ARB to consult with the State Energy Resources Conservation and Development Commission (CEC), the PUC, Department of Resources Recycling and Recovery, the Department of Toxic Substances Control, the Department of Industrial Relations, the Contractors State License Board, and the Labor and Workforce Development Agency to prepare a proposal to be delivered to the Legislature by January 1, 2024, specifying how to transition California's economy from away from HFCs by 2035 through maximizing recovery and reclamation and increasing adoption of alternative low and ultra-low GWP refrigerants. The proposal must include:

   a) A list of all existing sources of incentives for reducing HFC emissions to 40% of 2013 levels by 2030 and whether the GWP of the technology supported in these programs should be lowered;
   b) Proposals for additional incentives, safety testing, and demonstration projects to aid the transition away from HFCs and increase market availability of alternative refrigerants and reclamation technology. This includes testing needed to update safety standards for design and use of equipment using low and ultra-low GWP refrigerants;

c) Suggested legislative or regulatory changes necessary to transition away from HFCs;
d) Recommendations on interim steps to fully transition to ultra-low or no GWP alternatives including how to establish a robust reclamation system for HFCs with higher GWP;
e) An analysis by the CEC of issues preventing high levels of HFC reclamation today, which must include an analysis of the reverse supply chain, include interviews with appliance technicians servicing HFC-using appliances in California, and with refrigerant distributers and wholesalers;
f) Workforce training recommendations to grow the workforce of technicians capable of handling natural alternatives with GWP < 15 and servicing the new appliances that use these refrigerants; and
g) A list of all areas where the State owns or operates appliances that use HFCs and a proposal for the most cost-effective way to improve refrigerant management, including leak detection and reduction and reclamation during decommissioning, and to transition those appliances to ultra-low GWP or no-GWP alternatives.

Background

1) *Greenhouse Gas (GHG) emissions in California.* The primary duties of ARB are to protect the public from the harmful effects of air pollution and develop programs and actions to fight climate change. ARB is tasked with the ambitious goal of achieving a 40% reduction of GHG emissions below 1990 levels by 2030 as set by SB 32 (Pavley, Chapter 249, Statutes of 2016). In order to meet this goal, California will need to reduce its GHG emissions by ~4% each year, but during the latest year emission data are available the state reduced its GHG emissions by only 1.6% (2021 California Green Innovation Index). In order to increase the rate of GHG emission reduction ARB will need to engage in far-reaching rulemaking and regulation.

2) *Global Warming Potential*. GWP is a relative measure of how much heat any given amount of a GHG traps in the atmosphere compared to a similar amount of carbon dioxide, whose GWP is standardized to 1. GWP is typically calculated over a specific time interval, commonly 20, 100, or 500 years. ARB uses GWPs calculated by the Intergovernmental Panel on Climate Change that are considered over a 100-year timeframe. GWPs are updated periodically with improvements to the underlying science.

3) *Hydrofluorocarbons (HFCs) are short-lived pollutants with high GWP potential.* HFCs are man-made chemical organic compounds that contain

fluorine and hydrogen atoms and are usually a gas at room temperature. When these gasses are released into the atmosphere, they absorb outgoing infrared radiation which traps heat in the atmosphere and contributes to global warming. They usually have much shorter lifetimes (on average 15 years) in the atmosphere than carbon dioxide (100s of years). Despite their short lifetimes one molecule of a HFC will absorb significantly much more infrared energy than CO_2 because of its carbon-fluorine bonds. Most HFCs have GWPs in the 1,000s meaning that every ton of HFCs emitted is equivalent to releasing 1,000 tons or more of CO_2 for the purposes of global warming.

4) *HFCs emissions are the fastest growing source of greenhouse gas emissions*. HFCs have many industrial uses, including in use as refrigerants, propellants, insulating foam, solvents, and fire suppressants. According to ARB, "Fluorinated gases—especially HFCs—are the fastest-growing source of GHG emissions both in California and globally. More than three-quarters of HFC emissions in California come from the use of refrigerants in the commercial, industrial, residential, and transportation sectors."

   In 2016, SB 1383 (Lara, Chapter 395) was passed, requiring ARB to reduce HFC emissions 40% below 2013 levels by 2030. In order to achieve this goal ARB implemented the Refrigerant Management Program to reduce leaks of high GWP refrigerants, issued prohibitions for high GWP HFCs in several consumer products, implemented a cap-and-trade program compliance offset protocol for the capture and destruction of ozone depleting substances. ARB recently promulgated a regulation requiring all new large refrigeration facilities to use refrigerants with GWP < 150 and new air conditioners to have GWP < 750 with staggered implementations in 2023 and 2026. It has also adopted a refrigerant reclamation program requiring at least 10% reclaimed refrigerant in new AC equipment.

   In 2018, ARB estimated that in order to meet the SB 1383 goals California will need to reduce its HFC emissions by half.

5) *Bulk HFCs are used to replenish existing refrigeration systems as they leak.* ARB has enacted regulations that limit the instillation of new AC and refrigeration systems with high GWP refrigerants and this bill would prompt further restrictions on new units in the future. However, those measures only address a portion of potential HFC emissions because many of the existing systems leak. According to ARB California has enough HFCs currently banked in these existing sources to equal 375 million metric tons of CO_2 if they are

emitted. Leaks in such equipment are inevitable, especially as they reach the end of their usage lifespans and are decommissioned. Additionally, because such devices like air conditioning and refrigerators have long lifespans, they must be periodically serviced to replaced leaked HFCs. Bulk HFCs are used to maintain this equipment, but at the cost of replenishing the bank of high GWP emissions. Without regulations on the bulk HFCs used to replenish the emitted gasses there will be little incentive to address these leaks and promote the recovery of HFCs for reuse.

6) *Low GWP alternatives are commercially available.* The next generation of synthetic refrigerants are hydrofluoroolefins (HFOs). These chemicals are very similar to HFCs, performing the same function in refrigeration. Their chemical bonds are more reactive than HFCs and so they degrade faster in the atmosphere and have a much lower GWP. However, like HFCs, HFOs degrade into several compounds that could be very damaging to human health and the environment.

   There are also natural refrigerants available on the market that have low GWP and natural degradation pathways if emitted, though they come with their own drawbacks. Hydrocarbons like propene and ethane are excellent refrigerants with low GWP and toxicity, but are highly flammable and potentially explosive requiring careful precautions to use safely. Ammonia has been widely used as a very efficient refrigerant, though ammonia is acutely toxic, so systems must be designed, installed, operated and maintained in accordance with national safety standards. Carbon dioxide itself can be used as a refrigerant being non-toxic and non-flammable, but it has poorer efficiencies than other refrigerants which makes operating the equipment more energy intensive.

Comments

1) *Purpose of this bill.* According to the author, "Hydrofluorocarbons (HFCs), now commonly used in air conditioners and refrigerators, are a potent driver of climate change. Although HFCs are among the so-called "short-lived climate pollutants" that only persist in the atmosphere for about 20 years, over those 20 years they are thousands of times more damaging to the climate than carbon dioxide. That's why the international science community has targeted taking action now on HFCs and other short lived climate pollutants as critical to help avert catastrophic climate change.

   SB 1206 is aimed at significantly lowering emissions from the short lived climate pollutants used in refrigeration, primarily HFCs. This involves

transitioning to refrigerants with a lower climate impact and reclaiming and recycling existing refrigerants with high Global Warming Potential (GWP)."

2) *Quick action to limit short-lived pollutants can have immediate benefits.* Because HFCs stay in the atmosphere for a relatively short amount of time, limiting their emissions can quickly result in a decrease in their presence in the atmosphere. Unlike actions to curb carbon emissions, which are vital but will not result in decreases in atmospheric CO_2 for decades, actions to reduce HFC emissions will have a rapid effect on reducing global warming.

3) *New sources and existing base.* This bill curbs future emissions by reducing the GWP of future refrigerants used in new equipment. However, California currently has a large stockpile of appliances that use HFCs that will continue to slowly leak into the atmosphere which will cause California to surpass its HFC emission goals. This bill helps address this problem by allowing recaptured HFCs for use, indirectly incentivizing investments in leak prevention and recapturing technology. In the future the Legislature may wish to consider advancing policies that will directly incentivize the reclamation and destruction of HFCs from existing appliances.

FISCAL EFFECT: Appropriation: No Fiscal Com.: Yes Local: Yes

According to the Senate Appropriations Committee:

- Unknown costs of up to $630,000 annually (Cost of Implementation Account) for ARB to prepare and submit a report to the Legislature, and to accommodate accelerated implementation needs due to prohibitions on bulk HFCs or bulk blends offered for sale or distribution in the state.

- Unknown, likely minor costs for various department to consult with ARB.

SUPPORT: (Verified 5/19/22)

350 Humboldt: Grass Roots Climate Action
350 Silicon Valley
Californians Against Waste
Elders Climate Action, Norcal and Socal Chapters
Environment California
Environmental Investigation Agency
Institute for Governance & Sustainable Development

National Stewardship Action Council
Pacific Environment

OPPOSITION: (Verified 5/19/22)

Air Conditioning, Heating and Refrigeration Institute

ARGUMENTS IN SUPPORT: According to Californians Against Waste, "During their active lifespans the most abundant HFCs are 3,790 times more damaging than CO2 for the atmosphere over a 20 year period. Leaks of HFCs from air conditioning and refrigeration units are a major source of statewide and global emissions, with an average supermarket refrigeration system leaking 25% of its total refrigerant charge annually… CA should reestablish its leadership role on HFCs by restricting the GWP of HFCs that can be sold in CA, encouraging reclaim and recycling of high GWP HFCs, creating a financial incentive to reduce refrigerant system leaks, and spurring the transition away from HFCs to natural refrigerants that have little or no impact on the climate."

ARGUMENTS IN OPPOSITION: According to the Air Conditioning, Heating and Refrigeration Institute, "In California, AHRI has spent years working side-by-side with the California Air Resources Board (CARB) on the implementation of the agency's HFC regulations.... Unfortunately, industry still faces a major obstacle to complying with CARB's and EPA's regulations in the State of California. Building codes in the state do not currently allow for the use of the next generation, low-GWP substitute refrigerants required by the regulations… AHRI believes that the GWP limits included in Section 2(6)(b) have the potential to significantly disrupt retailers' progress towards the transition to low GWP (A2L) refrigerants, by interfering with the carefully crafted agreements that have been negotiated between manufacturers, retailers, CARB, and EPA."

Prepared by: Jacob O'Connor / E.Q. / (916) 651-4108
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****** END ******