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Regulations in Flux: 2020 Refrigerant Rulemaking in Review

State and international regulations continue to drive HFC refrigerant phase-down

By Jennifer Butsch
Regulatory Affairs Manager
Emerson

Legal wrangling has not only delayed the progress of one of the world's leading governing bodies on HFCs, but also has left the U.S. without a clear path forward in terms of a unified refrigerant strategy.

The regulation of refrigerants continues to be a source of great uncertainty in the commercial refrigeration industry. At the heart of this issue is the subject of carbon emissions from hydrofluorocarbon (HFC) refrigerants and their potential contribution to climate change. As global, national and state regulations have targeted the phase-down of HFCs in recent years, the industry has seen a shift toward alternative refrigerants with lower global warming potential (GWP). While more environmentally friendly, these emerging options pose additional questions about performance and safety, with many of the lowest-GWP alternatives bearing a degree of flammability.

It's a dynamic regulatory mix that has been in flux for several years and unfortunately isn't getting any less complicated. In 2017, the U.S. District Court of Appeals for the D.C. Circuit ruled to vacate the Environmental Protection Agency's (EPA) Significant New Alternative Policy (SNAP) Rule 20. The court ruled that the EPA did not have the authority to require those who had already moved away from using ozone-depleting substances (ODS) to phase down to lower-GWP HFCs under its Clean Air Act (CAA) — which was originally intended to eliminate the use of ODS. Thus, the EPA could no longer enforce the GWP-based guidelines of its 2015 landmark rule.

Despite widespread business and HVACR industry objections to overturn the District of Columbia Court of Appeal's decision, the Supreme Court declined to hear the HFC case in 2018[1]. In response to the D.C. Circuit's decision, the EPA published a "Notification of Guidance," stating that it would not implement any of the HFC restrictions set forth in SNAP Rules 20 and 21. The Natural Resources Defense Council (NRDC) filed a lawsuit claiming that the 2018 Guidance was overly broad because it did not distinguish between ODS replacements and HFC replacements, and that the EPA had not followed proper procedures, as it was published without seeking stakeholder comments.

On April 7, 2020, the United States Court of Appeals for the District of Columbia Circuit granted the NRDC's petition, stating that the EPA guidance was procedurally inappropriate. The court agreed that the initial 2017 decision required only a partial vacatur, not an elimination of the requirements of SNAP Rules 20 and 21 entirely[2].

All of this legal wrangling has not only delayed the progress of one of the world's leading governing bodies on HFCs, but it has left the U.S. without a clear path forward in terms of a unified refrigerant strategy. Since its passing in 2015[3], SNAP Rule 20 had been the law of the land, and the industry had already made great strides toward meeting its mandates. While the majority of the industry still supports the move toward a more sustainable and environmentally friendly future, court rulings around SNAP Rule 20 and 21 have created many questions about what the path forward will look like.

Making sense of these events and their near- and long-term implications requires an understanding of regulatory developments on the federal, state and international levels.

EPA rescinds additional HFC-related regulations

In response to the 2017 court ruling, the EPA has also rolled back other HFC-related regulations. In particular, it excludes HFCs from the leak repair and maintenance requirements for stationary refrigeration equipment, otherwise known as *Section 608 of the CAA*[4].

The updated rule, which had been in effect since 2016, lowered the leak rate threshold in supermarket refrigeration systems from 35 percent to 20 percent and set forth specific requirements pertaining to HFC management. With the rescinding of this rule, refrigeration equipment with 50 pounds or more of HFC refrigerant would no longer be subject to these requirements.

Even if the leak repair and maintenance requirements of Section 608 are no longer enforced for HFC systems, an effective leak repair and maintenance program is still generally recognized as an industry best practice. Other beneficial provisions of Section 608 — including the certified technician program and the refrigerant recovery and reclamation rules — are still in effect[5].

The U.S. Climate Alliance, with a shared commitment of reducing SLCPs and HFCs, has grown to 25 members — comprising more than 55 percent of the U.S. population and an $11.7 trillion economy.

California fills the regulatory void

In absence of regulatory certainty at the federal level, many states are adopting environmental regulations that seek to limit the negative impacts of short-lived climate pollutants (SLCPs) such as HFCs. California was the first state to take official action. California Senate Bill 1383, also known as the *Super Pollutant Reduction Act*, was passed in 2016 and requires that Californians reduce F-gas emissions by 40 percent by 2030[6]. The California Air Resources Board (CARB) has been tasked with meeting these reductions.

Since 2016, CARB had been using EPA SNAP Rules 20 and 21 as the bases of its HFC phase-down initiatives. With the vacating of SNAP Rule 20 in 2017, CARB moved to adopt its existing compliance dates that were already implemented or upcoming. This first phase of CARB rulemaking took place in March 2018 and helped maintain the progress the state had already made in transitioning from HFC refrigerants.

To strengthen these efforts, California Senate Bill 1013 was signed into law in Sept. 2018[7]. Referred to as the *California Cooling Act*, this law mandates the full adoption of SNAP Rules 20 and 21 as they read on Jan. 3, 2017. Currently in effect, this law does not require additional CARB rulemaking to uphold compliance dates but does include the following provisions:

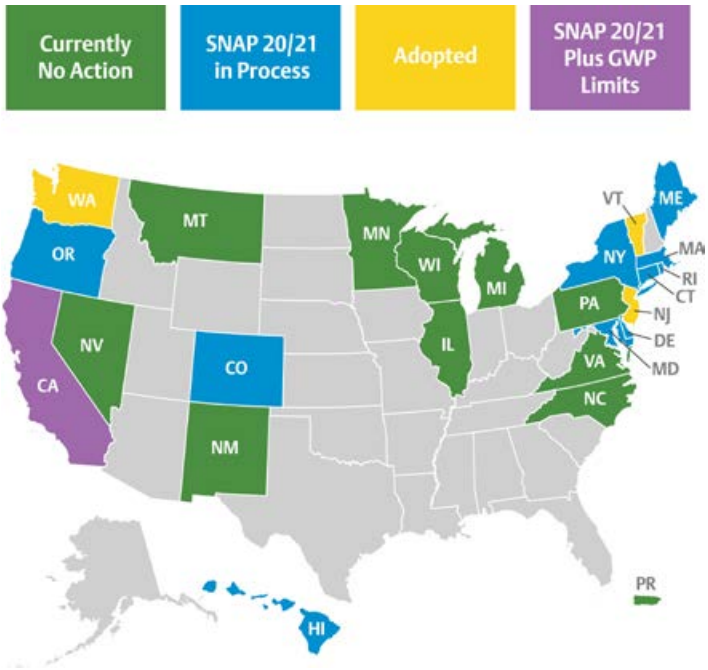
- The option to modify compliance dates
- The ability to list or delist refrigerants, regardless of federal status
- Prohibits selling, leasing or renting equipment inconsistent with provisions
- Establishes an incentive program to promote the adoption of new refrigerant technologies

To reach the 40 percent reductions required by 2030, CARB is also proposing an aggressive second phase of rulemaking that would further impact commercial refrigeration and AC applications. CARB has held public workshops and invited industry stakeholders to comment on the details of this proposal, which currently states[8]:

- Refrigerants with a GWP greater than or equal to 150 will not be allowed in new stationary refrigeration systems charged with more than 50 pounds, effective Jan. 1, 2022.
- Existing food retail facilities with refrigeration systems charged with more than 50 pounds must collectively meet a 1,400 GWP average or 55 percent greenhouse gas emission potential (GHGp) reduction over 2018 levels, by 2030.
- Refrigerants with a GWP greater than or equal to 750 will not be allowed in new stationary air conditioning equipment, effective Jan. 1, 2023.
- Refrigerants with a GWP greater than or equal to 750 will not be allowed in chillers (including process chillers) greater than -15 °F and ice rinks, effective Jan. 1, 2024.
- Refrigerants with a GWP greater than or equal to 2,200 will not be allowed in new chillers ranging from -15 °F through -58 °F, effective Jan. 1, 2024.

CARB is planning on finalizing these rulemaking proposals in the summer of 2020 and is still seeking industry input. In the meantime, industry stakeholders will work with CARB to help establish a mutually agreed-upon approach; Emerson will continue to participate in this process.

U.S. Climate Alliance Action on SNAP 20/21



Members of the U.S. Climate Alliance have vowed to reduce HFCs and SLCPs; some are either planning or have already adopted EPA SNAP 20/21. California is pursuing even further GWP limits.

Other states follow California's lead

With California taking a leadership role on environmental regulations, it's very likely that other states will adopt a similar (if not identical) approach. In 2017, a coalition of 16 states and Puerto Rico emerged to form the U.S. Climate Alliance, with a shared commitment of reducing SLCPs and HFCs. Since then, the Alliance has grown to 25 members — comprising more than 55 percent of the U.S. population and an $11.7 trillion economy; several of its states have announced plans to follow California's lead on HFC phase-downs.

Industry advocates, including the Air-conditioning Heating and Refrigeration Institute (AHRI) and the NRDC, have asked for states to be consistent in their approach to adopting CARB's rules.

Refrigerant safety standards and codes under review

Meeting the targeted emissions reductions in California will likely require the use of low-GWP refrigerants. But many of these low-GWP, hyrdrofluoroolefin (HFO) refrigerants are classified as A2L, or mildly flammable. The natural A3 refrigerant R-290 (propane) is also becoming more widely used in low-charge, self-contained commercial refrigeration applications. Currently, national and global governing agencies are evaluating the standards that establish allowable charge limits and the safe use of these A2L and A3 refrigerants.

Per a 2019 update from the International Electrotechnical Commission (IEC) to IEC60335-2-89, A2L and A3 charge limits have been increased for commercial refrigeration systems as follows[9]:

- A2Ls — from 150g to 1.2kg
- A3s — 500g for factory-sealed systems, and will remain at 150g for split systems

While the U.S. doesn't rely on the IEC to establish its safety standards, similar efforts to raise A2L and A3 charge limits are also taking place here. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Underwriters Laboratory (UL) are working to establish new charge limits and mitigations for the use of A2L and A3 refrigerants with support from industry and various stakeholders.

Once adopted, these standards will serve as the bases for codes that govern building, fire and other local authorities having jurisdiction (AHJ), who will ultimately oversee the applications in which these refrigerants are used. It's important to remember that building codes vary from state to state; thus, the adoption of flammable refrigerants ultimately will take place on local levels and may take years to accomplish.

Kigali Amendment not yet ratified in the U.S.

Among the regulatory uncertainty in the U.S., it's easy to forget that the Montreal Protocol has been evaluating the global warming potential of HFCs for nearly a decade[10]. In 2016, 197 countries met in Kigali, Rwanda, and agreed on a global proposal to phase down HFCs. The Kigali Amendment requires ratification from at least 20 countries to take effect; 92 countries (including the E.U., but not including the U.S.) have since ratified it. As such, it took effect for participating countries on Jan. 1, 2019.

While the U.S. is considering ratification, many industry stakeholders believe it would be beneficial to our current state of regulatory and economic affairs. Ratification could help to establish a framework for future refrigerant regulations that would provide the certainty needed to help the industry and regulatory bodies alike move forward with a unified approach.

According to an economic study co-sponsored by AHRI and the Alliance for Responsible Atmospheric Policy, ratifying the amendment could create up to 33,000 jobs in the manufacturing sector by 2027 and is expected to have a positive impact on the U.S. economy[11]. For these reasons, many in the industry are in favor of ratification and have demonstrated this through letters of support to the Senate and the White House.

New HFC bills introduced in the U.S.

The U.S. Senate and the House of Representatives have each penned new bills that would put the EPA in alignment with the Kigali Amendment and restore the EPA's authority to phase down the production and consumption of HFCs over a 15-year period.

- Senate: American Innovation and Manufacturing Act of 2019 (S2754)
- House: American Innovation Leadership Act of 2020 (HR5544)

While the future and timing of these new bills are uncertain, they offer the potential to re-establish a federal standard for HFC management, including guidelines for servicing, recovery, recycling and reclamation. In the best-case scenario, these could provide the industry guidance that individual states need to move forward with a unified approach, remove the legislative burden from the states, and reduce regulatory complexity.

Stay informed and advocate for regulatory uniformity

As 2020 moves on, there are many moving pieces on the regulatory chess board, but also some encouraging signs of progress. California has taken the lead on HFC regulations in the wake of a vacated SNAP Rule 20, and from all indications, many other states seeking to do the same will adopt this approach. If granted authority by Congress, the EPA likely will work on new regulations to regulate HFCs — the extent of which is still unknown. Meanwhile, revisions to safety standards governing A2Ls and A3s likely will result in charge limit increases. These pieces will continue to move in 2020, and we will keep you posted of these developments as they occur.

We at Emerson encourage you to make your opinions heard. If there are opportunities to provide public comments or participate in workshops such as those recently held by CARB, please take advantage of them. As an industry, the more we can push toward a uniform set of rules and regulations, the easier our transition will be into the next, more sustainable generation of refrigeration.

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