Refrigerant “State” of Affairs: End of 2018 Regulatory Status

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

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While the majority of the industry still supports the move toward a more sustainable and environmentally friendly future, vacating the EPA’s SNAP Rule 20 has created many questions about what the path forward will look like.

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). But among these more environmentally friendly options are additional questions about performance and safety, as some of these alternatives can come with a degree of flammability.

It’s a complex regulatory mix that unfortunately has recently gotten more 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 authority to phase down HFCs under the Clean Air Act (CAA) — which was originally intended to eliminate ozone-depleting substances (ODS) — and thus could no longer enforce the GWP-based guidelines of its 2015 landmark rule.

Despite widespread business and HVAC&R industry objections to overturn the District of Columbia Court of Appeal’s decision, the Supreme Court declined to hear the HFC case. In the meantime, the EPA is currently drafting new regulations that will clarify how it plans to move forward with the SNAP program. We can expect details on their position as early as Q1 2019.

All of this legal wrangling has not only delayed the progress of one of the world’s leading governing bodies on HFCs, but also left the U.S. without a clear path forward in terms of a unified refrigerant strategy. Since its passing in 2015, 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, vacating Rule 20 has 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 other HFC-related regulations

In response to SNAP Rule 20 being vacated, the EPA has indicated that it will no longer enforce refrigerant delistings and has proposed to roll back other HFC-related regulations. In particular, the EPA has proposed excluding HFCs from the leak repair and maintenance requirements for stationary refrigeration equipment, otherwise known as Section 608 of the CAA.

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 this proposal is approved and Section 608 is no longer enforced, an effective leak repair and maintenance program is still generally recognized as an industry best practice. Rolling back Section 608 could also potentially remove other beneficial provisions, such as the certified technician program and the refrigerant recovery and reclamtion rules — both of which may lead to poor refrigerant management practices and the potential for system contamination or even equipment failure.

California fills the regulatory void

In absence of regulatory certainty at the federal level, many states are adopting regulations and programs 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, aka the Super Pollutant Reduction Act, was passed in 2016 and requires that Californians reduce F-gas emissions by 40 percent by 2030. 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 rule-making 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. 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. The law is currently in effect and does not require additional CARB rule-making to uphold compliance dates. It also includes the following provisions:

• The ability to modify compliance dates
• Allows CARB 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 rule-making 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:

• 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 in 2022
• No production, import, sales, distribution or entry into commerce of virgin refrigerants with GWP greater than or equal to 1,500, effective in 2022
• Refrigerants with a GWP greater than or equal to 750 will not be allowed in new stationary air conditioning equipment, effective 2023

CARB is planning on establishing the final regulations for AC in late 2019 and commercial refrigeration in 2020. In the meantime, industry stakeholders will continue to work with CARB to help establish a mutually agreed-upon approach. Emerson has participated — and will continue to participate — in this process.

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, the U.S. Climate Alliance, which was formed out of a coalition of 16 states and Puerto Rico, committed to reducing SLCPs and HFCs. Among these alliance states, New York, Maryland, Connecticut and Delaware 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 National Resources Defense Council (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 require the use of low-GWP refrigerants. But, many of these low-GWP, hydrofluoroolefin (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.

Internationally, the International Electrotechnical Commission (IEC) has proposed increasing charge limits for refrigeration systems in IEC60335-2-89 as follows:

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

These proposals are still under review and will likely be published sometime in 2019.
Similar efforts to raise A2L and A3 charge limits are taking place in the U.S. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and UL are also working on establishing charge limits and mitigations for the use of A2L and A3 refrigerants.

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 takes place on local levels and may take years to accomplish.

**Kigali Amendment not yet ratified in U.S.**

Amidst 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. 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, and currently 53 countries (including the E.U. but not including the U.S.) have ratified it. As such, it will take effect on Jan. 1, 2019, for participating countries.

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 would 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 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 have a positive impact on the U.S. economy. 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.

**Stay informed and advocate for regulatory uniformity**

As we move into 2019, 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, other states seeking to do the same will adopt this approach. The EPA is currently working on new regulations that will likely restore its authority to regulate HFCs — but to what extent is still unknown. Meanwhile, revisions to safety standards governing A2Ls and A3s will likely result in charge limit increases. These pieces will continue to move in 2019, 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, 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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2. https://www.epa.gov/snap/snap-regulations