

## **ENSURING A SAFE REFRIGERANT TRANSITION**

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Now that the historic Kigali Amendment to the Montreal Protocol has been ratified by the appropriate number of countries around the world and entered into force in January of this year, there is considerable work yet to be done to ensure a safe transition from high GWP hydrofluorocarbon (HFC) refrigerants.

The current situation in the U.S. with respect to a national phase down or participation in a global phase down is murky, as the Trump Administration seems disinclined to submit the treaty for ratification. The legislative outlook also becomes less clear by the day as the 2020 presidential election looms on the horizon, coloring every legislative effort in stark political terms and increasing the difficulty of success. Add to the mix a plethora of state-level activities and the path perhaps becomes even rockier. See Figure 1. California has a policy goal to reduce emissions 40 percent by 2030, which is 5-10 years ahead of the Kigali Amendment. See Figure 2.

But even in the face of uncertainty, the industry's path forward is clear: A new generation of lower global warming-potential refrigerants is on the horizon and both refrigerant producers and equipment OEMs are moving forward at a smart pace.

In addition to legislative and regulatory avenues, manufacturers and producers have, under the auspices of AHRI, been researching suitable alternative refrigerants for the many necessary applications since 2011. The most promising of those are currently classified as either mildly flammable (A2L) or flammable (A3) and thus are prohibited from use in many areas and for many applications. Current real-world flammable refrigerant research involving the U.S. Department of Energy, AHRI, ASHRAE, and the State of California is now well underway, with several projects having been completed. See Figure 3.

Results of this research clearly indicate the suitability of many A2Ls with the proper mitigations, as most household ignition sources and hot surfaces cannot ignite these refrigerants. The suitability of A3s for most applications is far less clear, however, as the research has shown them to be not just flammable but in some cases explosive.

Additional research either underway or soon to be underway includes assessment of refrigerant detector characteristics for use in HVACR equipment, a combustion byproducts risk study, and assessing the effectiveness of mitigation requirements.

Regardless, for them to be considered suitable for use in homes and businesses, safety standards and building codes both in the U.S. and in much of the rest of the world would need to be revised. AHRI is working with standards committees, code officials, building officials, and firefighting organizations to keep them apprised of the latest research that will ensure the safe use of these refrigerants.

The bottom line is this: Our industry is ready for this coming transition, but there is much work still to be done. It is imperative that we all work together for our industry, which is critical to the continued comfort, safety, and productivity of the world's citizens.

Figure 1

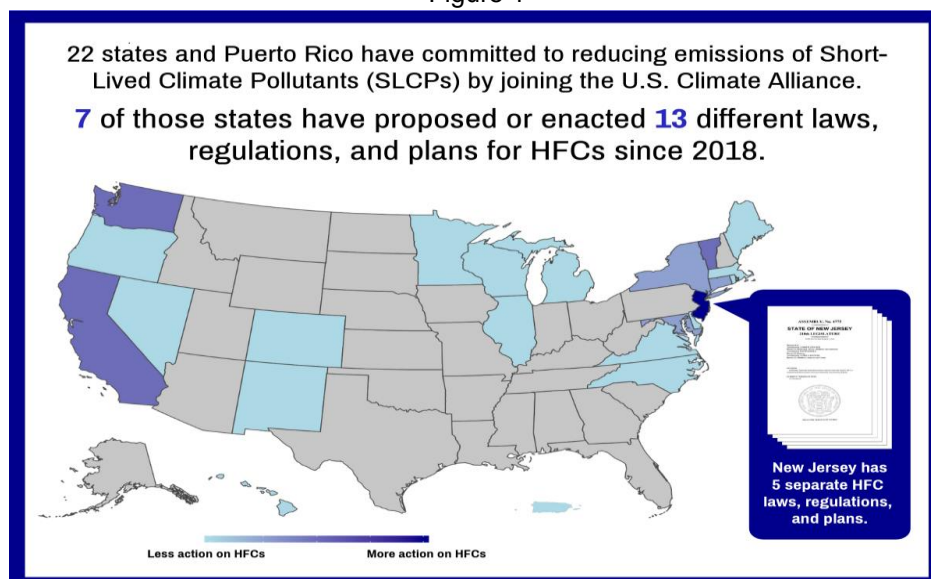


Figure 2

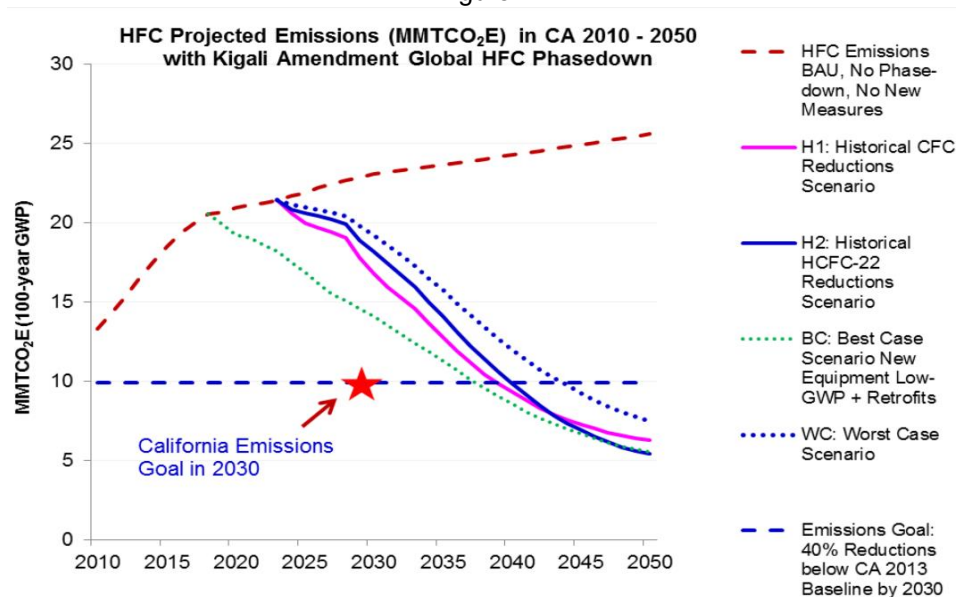


Figure 3

Equipment	A2Ls	A3 (R290)
PTAC	X	X
Mini-split		X
RTU	X	
Residential AC	X	
Reach-in cooler	X	X
Walk-in	X	
Service error and elec. feedthrough failure	X	