



*Climate change: melting glaciers, diminishing water resources, trapped sunrays increase global warming*



# **CLIMATE AND REFRIGERANT POLICY: THE CURRENT STATE AND PATH FORWARD**

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### Abstract

As nations around the world move to ratify the historic Kigali Amendment to the Montreal Protocol and prepare for the global phase down of hydrofluorocarbon refrigerants, the path forward is replete with challenges and opportunities. The political landscape has been dramatically altered in the United States, making climate-related initiatives a challenging sell. 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. On a parallel track is the very real need for global education and training of technicians to safely install and maintain equipment using this new technology.

### Introduction

Let’s examine where we are today and then we can discuss where we need to be in the next several years. For the Kigali Amendment itself, 20 percent of the approving nations must ratify it before it can take effect – a hurdle that appears likely to be overcome in short order. Once it enters into force, the step-down process begins whereby HFC refrigerants will be phased down by varying percentages over the next 30 years depending on whether a nation is A2, A5-1, or A5-2 (see Figure 1). It is unlikely that the United States will be in the initial 20 percent, although it is very much in its interest to ratify, as the eventual economic consequences on its manufacturers for not doing so will be significant. At the time of this writing, U.S. efforts with respect to the treaty are proceeding on parallel tracks. The U.S. State Department had not yet submitted the treaty to the United States Senate, where a two-thirds majority would be required for ratification. But industry is hard at work ensuring access to the appropriate new refrigerants once the treaty is (we hope) eventually agreed upon.

	<b>A5 Group 1</b>	<b>A5 Group 2</b>	<b>A2</b>
Baseline	2020-2022	2024-2026	2011-2013
Formula	Average HFC consumption	Average HFC consumption	Average HFC consumption
HCFC	65% baseline	65% baseline	15% baseline*
Freeze	2024	2028	-
1st step	2029 – 10%	2032 – 10%	2019 – 10%
2nd step	2035 – 30%	2037 – 20%	2024 – 40%
3rd step	2040 – 50%	2042 – 30%	2029 – 70%
4th step			2034 – 80%
Plateau	2045 – 80%	2047 – 85%	2036 – 85%

Figure 1

If the treaty is submitted to the Senate, a bipartisan vote will be required. While Republicans currently hold the majority, the 67 votes needed (out of 100) will require a substantial mix of both Democrats and Republicans to ensure ratification. The main challenge for industry will be to persuade Republicans that this treaty is in our industry's best interest – that we are supportive and fully prepared to carry out its provisions. The fact that both industry and environmental advocates are supportive should help, as that is not a particularly common phenomenon, but the task still will not be an easy one. In the meantime, while the political types work on ratification, the technical folks are busy with refrigerant research.

When the Low-GWP Alternative Refrigerants Evaluation Program evaluated potential HFC alternatives, most of the most promising ones had a major issue that would need to be resolved: Flammability. And that created a new wrinkle – if they were to be considered suitable for use in homes and businesses, building codes both in the U.S. and around the world would need to be revised. And to do that, code officials would need to be convinced of their safety. A follow-on research program involving the U.S. Department of Energy, AHRI, ASHRAE, and the State of California is now well underway, with several projects having been completed. To impact the next code cycle, all the relevant research must be completed by the end of this year. See Fig2.

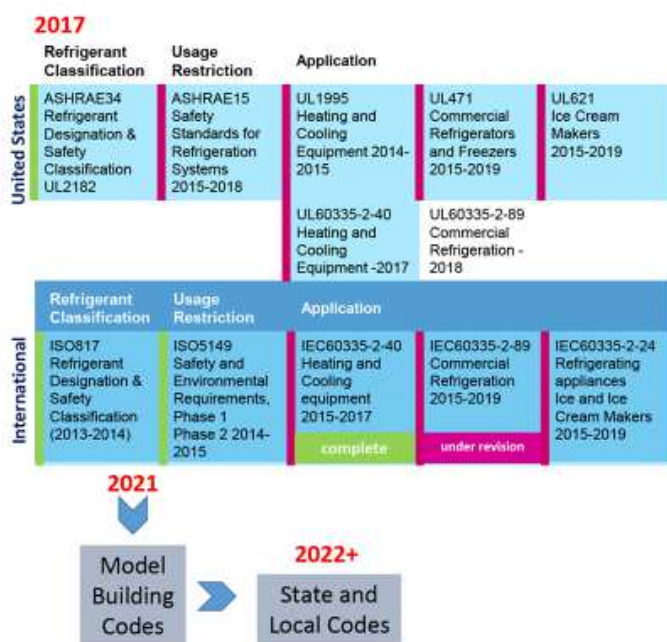


Figure 2

Of the 29 research projects identified by a 2015 industry survey, 8 were deemed urgent and were immediately pursued.

One project has been completed and the rest are expected to be completed before the end of 2017 or early in 2018, at which time the results will be evaluated and submitted to code developing bodies for their review.

Even as we work to ratify Kigali and ensure we are prepared with new refrigerants, those are not the end of the task. Once the new refrigerants have been tested and approved for use in different applications, technicians in the U.S. and around the world must be trained in their use. This is especially important, given the flammable nature of many of them, but it is also important because, unlike today, where we have dominant refrigerants for stationary and mobile residential and commercial air conditioning as well as commercial refrigeration applications, the next generation is likely to be more niche-based, with applications and sub-applications making a technician's job more technically demanding. International efforts are underway in this regard, with the UNEP-developed Refrigerant Driving License program and the Global Refrigerant Management Initiative being two good examples, with many more likely to come in individual countries.

The 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.

