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Moving Faster on Refrigerant Chemicals

By KEITH BRADSHER

An unusual coalition of industrial and developing countries began pushing Wednesday for stringent limits on the world's most popular refrigerant for air-conditioners, as evidence mounts that the refrigerant harms the earth's ozone layer and contributes to global warming.

The coalition is pitted against China, which has become the world's leading manufacturer of air-conditioners that use the refrigerant, HCFC-22. Most window air-conditioners and air-conditioning systems in the United States use this refrigerant, as well.

International pressure has grown rapidly this winter for quick action. "We scientifically have proof: if we accelerate the phaseout of HCFC, we are going to make a great contribution to climate change," said Romina Picolotti, the chief of Argentina's environmental secretariat.

An accelerated phaseout of the refrigerant could speed up by five years the healing of the ozone layer of the atmosphere. It could also cut emissions of global-warming gases by the equivalent of at least one-sixth of the reductions called for under the Kyoto Protocol.

The United States joined Argentina, Brazil, Iceland, Mauritania and Norway on Wednesday in notifying the Ozone Secretariat of the United Nations Environment Program that they want to negotiate an accelerated phaseout of hydrochlorofluorocarbons, or HCFC's, at an international conference in Montreal in September.

The conference is tied to the 20th anniversary of the signing of the Montreal Protocol, which has reduced emissions of most ozone-depleting gases but left a loophole for HCFC-22 production by developing countries. China has repeatedly said it will honor all current rules of the Montreal Protocol but does not want to add new ones.

Recent studies have shown that steeply rising production of HCFC-22 by China, India and other developing countries has slowed the healing of the ozone layer, which protects humans, animals and vegetation from the sun's dangerous ultraviolet rays.

A report last week by five American and European scientists found that sharp cutbacks in emissions of ozone-depleting gases since 1987 have been far more effective in combating global warming than the Kyoto Protocol, the 1997 agreement that was aimed directly at limiting climate change.

HCFC's and other ozone-depleting gases are extremely powerful warming gases. Gram for gram, the ones used as refrigerants have thousands of times the global-warming effect of carbon dioxide. The ozone-depleting gases are released in far smaller quantities, though, than carbon dioxide, which is emitted when fossil fuels are burned by vehicle engines, power plants and other users.

The report by the European and American experts, published last week in the Proceedings of the National Academy of Sciences, found that the Montreal Protocol had proved to be 5.5 times as effective as the Kyoto accord was intended to be in cutting emissions of global-warming gases. The Montreal agreement has been in force much longer and applies to developing and industrial nations alike, while the Kyoto Protocol has binding limits only for industrial nations.

The report has caught the attention of countries in the Pacific and Indian Oceans that fear that global warming will lead to a rise in sea levels and a significant loss of their limited land.

"As small island nations, our main concern is that whatever touches the climate has to be dealt with fairly quickly," said Sateaved Seebaluck, permanent secretary in the environment ministry of Mauritius, an island nation well east of Africa in the Indian Ocean.

Mr. Seebaluck said that a flurry of news reports about HCFC-22 this winter had been widely e-mailed among specialists and had led to greatly increased international interest in addressing the problem.

The Montreal Protocol currently allows developing countries to keep increasing their production of HCFC-22 until 2016, and then freezes production at that level until 2040, when it is supposed to be halted. But that schedule was devised in the early 1990s, when HCFC-22 was used mainly in industrial nations; developing countries were seen as too poor ever to afford much of the chemical.

The Kyoto Protocol then exempted HCFC-22 and other ozone-depleting substances from production and consumption limits on the grounds that the Montreal agreement had already addressed those matters.

Use of HCFC-22 has soared in the third world with the economic growth of China, India and other countries, along with the sharp drop in air-conditioner costs that has accompanied China's growing skill in making them cheaply. Mr. Seebaluck said Mauritius's use of HCFC-22

had risen more than 100-fold in the last six years because of a boom in hotel construction and the rapid expansion of the fishing industry, which uses a lot of refrigeration to preserve freshness.

The use in India and China, far larger markets, has been rising as much as 35 percent a year lately, with specialists predicting that similar growth could last through 2016.

Industrial nations are required to phase out HCFC-22 by 2020, but most are moving faster. The European Union phased it out in 2004. The United States will ban domestic production in 2010 and is considering whether to ban imports then, as well.

China has begun making air-conditioners with more modern refrigerants for the European market. But by continuing to produce HCFC-22 for markets elsewhere, the Chinese have been able to claim hundreds of millions of dollars a year in payments from an obscure United Nations agency.

The payments are to compensate Chinese chemical factories for incinerating a waste gas generated as part of the manufacturing process for HCFC-22. If the Chinese industry switches to modern refrigerants, it would no longer produce the waste gas and so would lose the credits.

India has a large and growing HCFC-22 industry that is also reaping a fortune in credits. But the Indian government has largely stayed on the sidelines in international talks, while China has called for industrial nations to pay even more for the incineration of waste gases from HCFC-22 production; China proposes to spend much of that to develop its renewable-energy industry.

A big problem is that no one has agreed what should replace HCFC-22. The chemicals requiring the fewest changes to air-conditioner designs avoid harm to the ozone layer but are still as potent, gram for gram, in terms of global warming.

Mack McFarland, chief atmospheric scientist at DuPont, said the company had developed a chemical that also has little effect on global warming. But the chemical is suitable only for vehicle air-conditioners, not the building air-conditioners that now rely on HCFC-22.

Environmentalists contend that chemical companies and air-conditioner makers are too slow to embrace other refrigerants, like ammonia or carbon dioxide, that may pose technical challenges but could be better for the ozone layer and global warming.

"Industry certainly is somewhat concerned about some of those chemicals because some of them don't promise a lot of profits," said Alexander von Bismarck, campaigns director of the Environmental Investigation Agency, a Washington advocacy group.

David Doniger, climate policy director at the Natural Resources Defense Council, said that even switching to new commercial refrigerants that are potent global-warming agents could help the environment. Air-conditioners designed for the new refrigerants tend to be more energy-efficient and often do not use as much refrigerant, he said.