



# China's Shifting Stance on Hydrofluorocarbons

Melanie Hart June 12, 2013

This past weekend the White House announced the signing of a new agreement between the United States and China on hydrofluorocarbons, or HFCs, which are highly potent greenhouse gases commonly used in air-conditioning units and refrigerators. During their two-day presidential summit at the Sunnylands estate in Rancho Mirage, California, U.S. President Barack Obama and Chinese President Xi Jinping jointly signed the following pledge:

*Regarding HFCs, the United States and China agreed to work together and with other countries through multilateral approaches that include using the expertise and institutions of the Montreal Protocol to phase down the production and consumption of HFCs, while continuing to include HFCs within the scope of UNFCCC and its Kyoto Protocol provisions for accounting and reporting of emissions.<sup>1</sup>*

This new agreement is very big news. The United States has been pushing for years to get Chinese support for a global phase down of HFCs under the Montreal Protocol Treaty on Substances that Deplete the Ozone Layer, which was originally signed in 1987 to curb the use of ozone-depleting chemicals.<sup>2</sup> Amending this treaty to include curbs on the production and use of HFCs would eliminate the equivalent of 90 billion tons of carbon dioxide by 2050 and avoid half a degree Celsius of warming by the end of the century.<sup>3</sup> This is critically important given that the global goal now is to limit temperature increase caused by humans at 2 degrees Celsius and we have already warmed the planet almost 1 degree Celsius.<sup>4</sup>

Hydrofluorocarbons were one of the substitutes brought onto the market through the Montreal Protocol phase-down process. HFCs were brought in to replace hydrochlorofluorocarbons, or HCFCs, which are older refrigerants that damaged the ozone layer. The problem, however, is that at that time, no one realized that although HFCs are ozone friendly, they are also one of the most potent greenhouse gases, thus potentially accelerating global warming much faster than carbon dioxide.<sup>5</sup>

Over the past few years, air-conditioning use has exploded in developing countries—particularly China and India—and many of the new units manufactured and sold in those countries are utilizing HFCs. If that trend continues, the global-warming impact could be astronomical. Experts predict that if the current trend in the use of HFCs continues, those compounds could account for 20 percent of global greenhouse-gas emissions by 2050.<sup>6</sup>

Fortunately, the Montreal Protocol also allows for using its mechanisms to reduce substitutes to ozone-depleting substances, when those substitutes turn out to have adverse environmental or climate impacts. This provision provided room for the United States, Canada, and Mexico to create a joint proposal (the “North American proposal”) calling on the parties to the Montreal Protocol to once again band together, this time to phase down HFCs and replace them with new chemicals that would be safe, not only for the ozone layer but also for global warming.<sup>7</sup> The United States, Canada, and Mexico have submitted the proposal on an annual basis since 2009. More than 110 other countries support the proposal, but China, India, and Brazil do not and their objections have kept the proposal from moving forward.<sup>8</sup>

China’s objections have been particularly important because it is a major global manufacturer and exporter of HFCs. Chinese delegations to the Montreal Protocol have offered a variety of legal and diplomatic reasons for why they do not support incorporating HFC phase downs into this treaty. Chinese representatives, for example, often state that since HFCs are greenhouse gases, an HFC phase down is a climate change issue, rather than an ozone-protection issue, and as such it should be discussed under the auspices of the United Nations Framework Convention on Climate Change, or UNFCCC—such as through the UNFCCC’s Kyoto Protocol—along with other global warming issues.<sup>9</sup> Chinese representatives also complain about the uncertainty regarding the price and availability of HFC substitutes.<sup>10</sup>

In reality, Beijing likely fully recognizes that the Montreal Protocol is well suited for HFC action, and that if the parties adopt a phase-down plan, they can build in sufficient time for chemical companies to dive into the market and compete with one another to produce the substitutes. What has really been happening on the Chinese side is that China’s chemical companies have been lobbying against the Montreal Protocol amendment, and administrative divides between China’s climate and environmental agencies have made it difficult to overcome that lobbying power.

Last weekend China pivoted and for the first time agreed to work jointly with the United States and other countries to phase down HFCs through some combination of multilateral forums that will include the Montreal Protocol and the UNFCCC. The current North American proposal is not the only option for HFC action; other proposals could be put on the table for consideration as well. The exact process still needs to be worked

out, but this is a major step forward given that China has so far objected to all international attempts to phase down HFCs under the Montreal Protocol.

The real story behind China's sudden pivot on HFCs is much bigger than what has been reported in the press surrounding the Sunnylands summit. While the United States has been pushing this issue within the Montreal Protocol over the past few years, major financial and political struggles have been underway in China, and a sudden shift in those struggles is what allowed for this new U.S.-China HFC agreement.

This issue brief will provide the backstory behind China's new willingness to work with the United States on phasing down HFCs and highlight some of the pitfalls we may face as this important new initiative moves forward.

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### China's powerful chemical lobby

Two Chinese industries are heavily impacted by the HFC issue: the chemical industry, which produces HFCs and other refrigerants; and appliance manufacturers that produce air conditioners and refrigeration units that utilize those chemicals.

China's chemical industry has been the biggest barrier to change on HFCs. When China initially agreed under the Montreal Protocol to phase down HCFCs, China's state-owned chemical companies invested heavily in the research, development, and production of HCFC substitutes, particularly HFCs. Today, those investments are finally starting to pay off, and the chemical companies have no intention of cutting off that lucrative revenue stream.

Sinochem Lantian, a major Chinese state-owned chemical company, now dominates the Chinese market for HFC-134a, an HFC refrigerant used primarily in vehicle air-conditioning systems.<sup>11</sup> Over the past few years, Sinochem Lantian has ramped up HFC production and raked in huge profits. The company's net profits from HFC-134a and other Montreal Protocol substitutes rose a whopping 48 percent between 2010 and 2011, and the company is still building out new HFC production facilities.<sup>12</sup> Once those HFC chemical plants are built, they cannot be converted to produce alternative compounds, thus Sinochem Lantian and other Chinese HFC producers have a strong incentive to block the international effort to phase down the use of those products.

And that is exactly what they have been doing. The China Association of Fluorine and Silicone Industry, or CAFSI, has been a steady presence at Montreal Protocol meetings, and the powerful state-owned chemical companies such as Sinochem Lantian also send representatives to make sure that their objections are voiced.<sup>13</sup> At the last big Montreal Protocol meeting in July 2012, for example, Chinese chemical-industry representatives issued an official statement objecting to any consideration of HFC phase downs under the protocol.<sup>14</sup>

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## Administrative divides further stalled China's progress on HFCs

HFC progress has been made even more difficult in China due to an administrative divide between that nation's climate change and pollution regulators.

HFCs are a greenhouse gas included in the Kyoto Protocol.<sup>15</sup> From a Chinese regulatory perspective, that means HFC emissions fall under the authority of China's powerful National Development and Reform Commission, or NDRC, which has a mandate from China's State Council (the national cabinet) to combat climate change, to regulate greenhouse-gas emissions, and to serve as China's representative in international climate negotiations under the UNFCCC.

The fact that the NDRC has domestic regulatory authority over HFC emissions is significant because the agency has major policy clout, particularly on economic issues. If any Chinese agency can find a way around the opposition of China's chemical industry on HFCs, it's likely to be the NDRC.

The problem for the international discussions on HFC phase downs, however, has been that the National Development and Reform Commission has limited authority over Montreal Protocol negotiations. The Montreal Protocol was formed to address the ozone layer, and in China that issue has long been considered an environmental protection concern, not a climate change issue.

China's Ministry of Environmental Protection Foreign Economic Cooperation Office, or FECO, heads up China's delegations to the Montreal Protocol meetings and takes the lead on implementing the Montreal Protocol phase-down plans. FECO's role has been a problem on the HFC front because, unlike the NDRC, China's environmental ministry is relatively weak in the political hierarchy.

This administrative divide has created a major bottleneck on HFC action within China. The NDRC has authority to regulate HFC emissions, but the major international proposal on global HFC regulation has been put forward under the Montreal Protocol, where the NDRC does not have primary authority. While NDRC officials do attend those meetings, they generally do not support signing on for Chinese engagement in a climate change process under an environmental forum where they do not have the leading authority on the Chinese side.

China's Environmental Ministry has authority to negotiate phase downs of substances under the Montreal Protocol, but the ministry does not have authority to regulate HFCs within China, and it lacks the political clout to face off against China's powerful chemical industry.

The end result of this divide has been confusion and stalemate. It is a situation that has allowed the Chinese chemical lobby to basically dictate the nation's international stance on this issue and China's response to the North American HFC phase-down proposal.

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## Changing international stance made Chinese progress possible

Over the past few years, however, two changes have contributed to a gradual policy shift within China and, more recently, China's changing international position on HFCs.

First, international momentum on the HFC issue has finally picked up sufficient speed to change the market prospects for HFCs and the appliances that use them. National-level HFC restrictions are already under discussion in the United States, Japan, and Europe.<sup>16</sup> Some of those discussions are proceeding in fits and starts, but the growing momentum is clear. Even without a Montreal Protocol amendment, many of China's major export markets are looking increasingly likely to phase down HFCs through some form of national policy action. If these phase downs happen, then Chinese appliance and chemical exporters will have to comply with those new standards, regardless of what happens within China.

Phasing down HFCs on a country-by-country basis has major implications for China's air conditioning manufacturers and gives that industry a growing incentive to support an international HFC agreement, because standardizing an HFC phase down across borders would make those changes easier to predict and adapt to. Progress on the chemical industry side is slower, but once appliance manufacturers start shifting away from HFCs to alternative replacement chemicals, then the Chinese chemical manufacturers will eventually have to shift as well if they want to maintain market share. Once Chinese chemical companies become convinced that a global HFC phase down is inevitable, they will then have a strong market incentive to invest in the next generation of refrigerants instead of building out more HFC production plants.

At the same time that these changes have unfolded internationally, China's powerful National Development and Reform Commission has begun to increasingly take on HFC emission reduction as a domestic climate change issue. China's 12<sup>th</sup> *Five Year Plan for Controlling Greenhouse Gas Emissions (2011-2015)* includes a mandate from China's national cabinet to the NDRC to step up domestic efforts to control HFC emissions.<sup>17</sup> According to Chinese chemical-industry experts, in recent months the NDRC has begun sending increasingly strong signals to the nation's chemical companies that tighter restrictions on HFC emissions are in the pipeline and that continued refusal to discuss potential pathways for an HFC phase down will not be tolerated.

The NDRC is also now including HFCs among the greenhouse-gas emission categories used to evaluate technologies and determine whether they can fall under the “low-carbon” category in China and thus be eligible for government subsidies and other policy benefits.<sup>18</sup> In other words, HFC emissions are now being regulated in China as a greenhouse-gas problem, and that is a major departure from programs under the Environmental Ministry that have long considered HFCs to be “green” chemicals since they do not damage the ozone layer.

Framing China’s domestic HFC phase down as a climate-related, emission-reduction measure rather than an ozone-protection issue is a major policy shift. Most importantly, it gives the powerful NDRC an opportunity to take more ambitious policy action against China’s chemical industry. Once the chemical industry faces more stringent HFC regulation domestically, it will quickly start to lose the incentives to block international action.

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### More work still needed: What to watch for going forward

The combination of steady international diplomatic pressure and increasing NDRC leadership on the HFC issue within China has made this new agreement possible, but there is still more work to be done.

Most importantly, we still don’t know whether China will explicitly support the North American HFC phase-down proposal under the Montreal Protocol or whether China will propose some alternative, either under the protocol or in another forum. Due to the internal Chinese administrative divides mentioned above, the only way to get China’s NDRC on board for this new agreement was to draw a clear institutional connection to the UNFCCC, thus the bilateral pledge to “use the expertise and institutions of the Montreal Protocol” while at the same time “continuing to include HFCs within the scope of UNFCCC and its Kyoto Protocol provisions.”<sup>19</sup>

It’s not yet clear exactly how this process will move forward toward a final Montreal Protocol amendment. The United States will certainly press for the adoption of the North American proposal, and China will likely press for more financing from developed countries in exchange for that amendment. This could complicate negotiations, though the Montreal Protocol has been successful in the past at getting all parties behind a common comprehensive package to achieve gas phase downs. Beyond that, the United States will have to keep an eye out for two potential pitfalls.

First, some individuals and agencies within China are likely to continue arguing that the best approach for HFC phase downs is to utilize the UNFCCC as the primary forum rather than the Montreal Protocol. The United States is highly unlikely to support such an approach because the Montreal Protocol amendment is ready to go today while

further action by the UNFCCC might not begin to take effect until much later. The parties to the UNFCCC are currently in the process of negotiating a new comprehensive climate agreement, which will include all parties. The schedule is for that agreement to be finalized in 2015 but not take effect until 2020.<sup>20</sup>

The ideal scenario would be to secure international agreement for a Montreal Protocol HFC amendment as soon as possible—ideally in the form of the North American proposal already on the table—and follow that by incorporating the HFC phase downs into the UNFCCC process so that the countries that make HFC phase-down commitments under the Montreal Protocol get some kind of credit for that action in the context of the UNFCCC negotiations.

To do that, however, the Chinese will need to clarify which agency will be in charge of those Montreal Protocol HFC negotiations: the NDRC or the Environmental Ministry. Ideally that agency will be the NDRC, since it has the authority to administer HFC regulations in China and the political clout to make that happen with the chemical industry. Chinese leaders could also set up a special coordination group under China's national cabinet to manage this process. Either way, Chinese leaders will need to pave a clear path forward on the administrative process side, and that has not happened as of yet. One thing to watch for on that front will be who sits at the table to represent China, and in what rank order, during the HFC discussions at the Montreal Protocol meeting in Bangkok, Thailand, later this month.

Second, China's chemical industry can be expected to try to slow the process. At present, DuPont (United States), Honeywell (United States), and Daikin (Japan) are the primary producers of HFC-replacement chemicals. Chinese chemical companies have some catching up to do if they want to compete in that market, and they are going to want to buy as much time as they possibly can to ensure that they have a chance to gain a sizable market share in the next generation of refrigerants.

Now that the U.S.-China HFC agreement has presidential sign-off, Chinese chemical-company opposition will not have the political clout to block all progress. Nonetheless, there will be some industry interests within China dragging their heels and trying to slow things down. One way to get around that problem is for the United States to cooperate with China in exploring new HFC alternatives and identifying potential phase-down pathways in both countries. As with former Montreal Protocol phase-down agreements, the North American proposal already gives developing countries extra time to meet their phase-down commitments, and that should also assuage Chinese industry concerns.<sup>21</sup> At a minimum, we should certainly keep a close eye on China's chemical-industry positioning and do what we can to keep this process moving quickly forward.

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## Conclusion

Although more work is needed, a major step has been taken. The signing of the new U.S.-China HFC cooperation agreement puts us on an entirely new playing field in the fight to combat global climate change. This new agreement also demonstrates that when the United States steps up to the plate to provide global leadership, other countries will follow, and that can result in major global progress. U.S. policymakers should keep that in mind going forward.

This agreement also serves as a good reminder that although we often clash with China on international climate issues, we should remember that just like here in the United States, China has divided interests on climate policy. There are industry groups within China lobbying to prevent climate action, but there are also progressive voices looking for new opportunities to get around those barriers. When China blocks U.S. climate initiatives at the international level, we should remember this reality and take the time to find opportunities to identify and work with the progressive Chinese voices that could be on our side.

In some cases, such as on the HFC phase-down issue, those voices may even come in the form of powerful government agencies such as the NDRC. Current NDRC Vice Chairman Xie Zhenhua is particularly well suited to take leadership on this issue, and that is exactly what is happening. Although Xie currently serves as China's top climate change official and is ranked second in the powerful NDRC leadership hierarchy, he previously served on the environmental side as China's minister of environmental protection, and in that capacity he was heavily involved in China's previous Montreal Protocol negotiations in addition to being in charge of implementing China's Montreal Protocol phase-down plans for ozone-depleting substances. As environmental minister, Xie even won the prestigious United Nations Environmental Programme's Sasakawa Prize, and that award specifically acknowledged his success in implementing China's Montreal Protocol phase-down programs.<sup>22</sup> The fact that China has a Montreal Protocol expert in Beijing's most powerful climate change seat at the NDRC has a lot to do with the success reached thus far.

When we look deeper at the various interests at play within the United States and China, we can almost always find some good opportunities for bilateral cooperation. In this most recent instance, our ability to do just that will almost certainly slow the pace of global warming and help preserve the planet for future generations. That is certainly a heady outcome for the recent presidential summit and a great note for U.S.-China relations to start out on under this new leadership term.

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## Endnotes

Note: All translations are the author's own.

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