

# A U.S.-CHINA PARTNERSHIP TO PROTECT OUR CLIMATE

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## INTRODUCTION

Climate change is an environmental problem of global dimensions, but we lack a system of international law that can impose a coordinated response. Bilateral agreements between key nations may present a solution. A partnership between the United States and China to develop technology for carbon capture and sequestration (“CCS”) offers hope for mitigating the climate impacts of China’s rapidly growing number of coal-burning electric power plants.

### I. CURRENT CLIMATE GOVERNANCE

With the Kyoto Protocol set to expire in 2012, the future of global climate policy is hazy at best. This international agreement was negotiated in an attempt to halt the growth of greenhouse gas emissions around the world, and it has been accepted by most nations with the notable exception of the United States. Nevertheless, although 182 countries have ratified the Kyoto Protocol, many Kyoto signatories are seriously out of compliance with their Kyoto obligations to cut emissions of greenhouse gases (“GHGs”). Canada has disavowed its commitment to the policy, and developing countries have no abatement obligations under Kyoto.

Into the breach of climate governance, local leaders are stepping forward with their own climate policies at the level of cities, states, and regions. Cool Cities programs, state Renewable Portfolio Standards, and the Regional Greenhouse Gas Initiative in the Northeast are just a few examples of the proliferation of local climate policies in America. A similar process at the international level would offer a path forward in these challenging circumstances. In particular, a bilateral agreement between the United States and China on CCS could make a significant difference in mitigating climate change.

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† Suggested citation: Thomas P. Lyon, Commentary, *A U.S.-China Partnership to Protect Our Climate*, 107 MICH. L. REV. FIRST IMPRESSIONS 70 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/lyon.pdf>.

## II. THE CASE FOR A U.S.-CHINA PARTNERSHIP

The case for a U.S.-China partnership on CCS rests on three critical points. First, more than any other country, the United States bears responsibility for the man-made GHGs that are warming our planet today. Second, more than any other country, China will determine our climate future. Third, China is unlikely to forgo the use of coal, its main indigenous energy resource and primary producer of carbon emissions. Taken together, these three points imply that the most important way to curb global warming may be to capture the GHGs from coal-fired power plants and store them in a fashion that keeps them out of the atmosphere. This process is known as carbon capture and sequestration. If the United States fails to work with China to deploy CCS technology, U.S. domestic climate policy will be largely moot.

As a nation, we Americans bear a moral responsibility to own up to our role in global warming. Carbon dioxide remains in the atmosphere for over a century, so the cumulative emissions over the last hundred years created the warming we experience today. From 1950 through 2005, the world's top GHG emitter (in CO<sub>2</sub> equivalent, a measure of carbon dioxide concentration) was the United States, at 186.1 billion tons. Trailing well behind the United States were the European Union countries at 127.8 billion tons, Russia at 68.4, China at 57.6, and Japan at 31.2 (as Michael Glantz [noted](#) in *What Makes Good Climates Go Bad? . . . and . . . Why Care?*). We remain the richest nation in the world, as well as the world's innovation leader. We can—and should—provide the technological leadership to solve the global climate problem, and create new green industries and jobs in the process.

Although the United States was historically the world's emissions leader, that "honor" has been passed on to China. It is now widely estimated that in 2006 China surpassed the United States to become the world's largest emitter of GHGs, with current emissions already 14% greater than those of the United States. The Energy Information Administration projects that by 2030, China will emit 11.2 billion tons of GHGs, while the United States will emit "just" 7.95 billion tons. The majority of China's energy growth will come from coal. Since coal is the one fossil fuel that China possesses in abundance, it is highly unlikely that China will forego the use of this domestic fuel source. We should anticipate a world in which China continues to build one or two new coal plants every week.

Since China will continue to rely heavily on coal-fired electricity, even the best U.S. policy to limit domestic GHG emissions will fall woefully short of solving the climate problem. Thus, CCS is essential.

## III. THE UNITED STATES SHOULD LEAD THE DEVELOPMENT OF CCS TECHNOLOGY

There are several ways of developing CCS technology. The best known is to inject CO<sub>2</sub> deep underground into depleted oil and gas wells or saline aquifers. Oil companies already do so in order to draw more oil from exist-

ing reservoirs. Expanding this practice to encompass all CO<sub>2</sub> emissions from coal plants would require a massive new infrastructure of pipelines to carry the gas to spots with the necessary geology. An alternative is “mineralization,” in which finely ground minerals are heated and combined with CO<sub>2</sub> and water to produce calcium carbonate, a harmless compound that is the primary molecular component of limestone. Mineralization would produce large amounts of powdered calcium carbonate that would have to be disposed of in the ground or allowed to collect on the surface. Either system would be difficult and expensive to implement, but the technology appears to work.

America’s historic GHG emissions and its innovation edge mean that we should be at the forefront of developing new CCS technologies. And we should be prepared to transfer them at low cost to the developing world, especially China. Such a program will require a partnership between the public and private sectors. The public sector needs to provide basic research, through the national laboratories and through funding scientists and engineers in academia; it also needs to provide financial support for commercialization of promising technologies. The private sector needs to take the lead on commercialization, and to work closely with scientists and engineers doing basic research. Joint ventures for commercialization between Chinese and American firms represent a promising approach to partnering with China and should be encouraged. This would set the stage for market competition to cut costs and to roll out the technology on a large scale.

One of the concerns in implementing such a policy will be protecting the intellectual property of the firms that participate. If the U.S. government takes its moral responsibility seriously, however, and provides the bulk of the funding for the effort, then this issue is resolvable. In particular, we can draw upon the model the U.S. Department of Defense uses in contracting for new technology. The department funds early stage R&D and signs contracts with defense contractors to produce and test prototypes. Since the government is paying for the effort, it can exercise control of the intellectual property created. Typically this involves sharing a successful prototype with a “second source,” another firm that is invited to come in and compete with the original contractor for large-scale production. This process puts intellectual property in the hands of two or more rivals, who then bring the power of competition to bear on reducing procurement costs.

Unfortunately, instead of moving forward with a plan along the lines sketched out above, we have been moving in the opposite direction. The U.S. Department of Energy decided in January 2008 to pull out of a major FutureGen project that was a key U.S. R&D effort into CCS, although it continues to offer funding for new CCS projects. Also discouraging is the recent abandonment of several electric utility projects developing “capture ready” coal-fired power plants. If we lack the political and business will to make CCS work here in the United States, we have little hope of mitigating China’s coal-fired emissions.

## CONCLUSION

As long as the United States refuses to accept a leadership role commensurate with its responsibility for global warming, developing nations will have an easy excuse for inaction and the world will continue to heat up. Fortunately, both presidential candidates have promised to take action to combat climate change. A domestic policy to limit emissions is not enough, though. It is critical that we keep in mind the global importance of China, coal, and CCS. As the present and future primary sources of greenhouse gases, the United States and China must collaborate to reduce emissions. For America's part, we sorely need to work out how to develop CCS technology, and we need to transfer it at low cost without violating the intellectual property rights of domestic firms. If we shoulder our moral responsibility to lead in the development of CCS technology, and to transfer it to the developing nations that need it, we stand a chance of averting the looming climate crisis.