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Financing wind energy deployment in China through the Clean Development Mechanism

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“Has the Clean Development Mechanism stimulated additional wind development in China?” asked Energy Technology Innovation Policy research group fellows Gabe Chan and Joern Huenteler in Monday’s energy policy seminar. In a world in which “emission offsetting mechanisms are a central element of major climate policies around the globe,” Chan and Huenteler suggest that it is a good idea to learn as much as possible from the program that has been the largest generator of offset credits to date.

As Chan and Huenteler explained, from 2005 through 2012, the Clean Development Mechanism (a product of the Kyoto Protocol) provided additional funding for investment in emissions-offsetting projects. The intention of the CDM was to provide crucial funding for projects that would not otherwise have been financially viable. The majority of these projects (58%) were in China, including 1507 wind power projects with a total of about \$107 billion of investment.

Presumably, Chan and Huenteler reasoned, if the CDM wind projects were truly additional, they would be inherently less profitable than projects that were built without funding from the CDM—either because they used more costly technologies, or because they were built in areas with less robust winds. Accordingly, they examined China’s wind energy projects for evidence of differences between CDM and non-CDM projects.

From 2006-2012, Chan and Huenteler found, approximately 20% of China’s annual wind investment was made without to the ability to generate CDM credits. The researchers compared the estimated profitability of these projects with the CDM projects, incorporating data on turbine size, electricity tariffs and wind resources in the construction location, taking advantage of the Harvard China Project’s comprehensive wind speed database for China.

By all three measures, Chan and Huenteler found little difference between the CDM and non-CDM projects. Interestingly, however, this was not because the wind data showed the CDM projects to be more profitable than anticipated—if anything, calculations of profitability using the Harvard wind speed data showed projects were likely to be less profitable than projected. Nevertheless, the researchers argued, it is hard to credit these projects with being truly “additional,” given that other projects of indistinguishable profitability were successfully built without CDM funding.

Chan and Huenteler left open the possibility, however, that the collective impact of CDM funding in China did create, overall, more investment in wind than might otherwise have happened.

Given the difficulty of existing rules to establish the additionality of individual CDM projects, Chan and Huenteler suggested that in planning for future offsetting mechanisms, policymakers should consider incorporating comparisons between proposed projects and similar existing projects outside of an offset system into the benchmarking measure of additionality.



The talk was part of the Kennedy School's Energy Policy Seminar Series, which is jointly sponsored by the Energy Technology Innovation Policy research group of the Belfer Center for Science and International Affairs and by the Consortium for Energy Policy Research of the Mossavar-Rahmani Center on Business and Government.