China's Clean Energy Strategy: Solar, Shale Gas or Nuclear?

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Résumé

According to the Energy Information Administration, China has the largest shale gas reserves in the world, larger than the United States. While the US has begun an aggressive extraction of its shale gas using new fracking techniques, China has not. In this paper we develop a partial equilibrium model of world energy markets to examine the effects of ambitious shale gas extraction in China. The model incorporates demand growth by major sectors in China, North America, and the rest of the world, and the regional supplies of fossil fuels, as well as nuclear and renewables, projected to 2030. We compare the effects of three energy strategies: a target of meeting 25% of energy demand with gas by 2030, a target for a minimum share of renewables in total energy consumption reaching 25% in 2030, and a target of reducing cumulative emissions by 15% from the baseline by 2030. Our central scenario results show that the expansion of shale gas drives up Chinese carbon emissions. The development of renewable energy plays a greater role in meeting carbon targets.

Mots-Clés: Shale Gas, Renewable Energy, Climate Change, Energy Markets

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