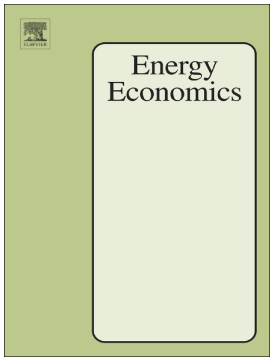

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Achieving China's energy and climate policy targets in 2030 under multiple uncertainties

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Abstract

The stringency of China's energy and climate targets in 2030 and the policy needed to realize these targets are full of controversy, mainly as a result of multiple future uncertainties. This study has developed a stochastic energy-economy-environment integrated model, to assess China's energy and climate targets in 2030, with a particular focus on the carbon intensity reduction, carbon emission peaking, and non-fossil energy development. The probabilities of realizing the targets are obtained, and the nexus among different targets is explored. It's argued that carbon emission management and policy-making should be implemented from the perspective of risk management, and policy makers can take corresponding policy measures based on the degree of confidence required under multiple future uncertainties. It is found that the probabilities of realizing carbon emission-peaking target and non-fossil energy target are low, with the business-as-usual efforts, and additional policies may still be needed. More specific, carbon pricing plays a major role in curbing and peaking carbon emissions, while the policy mix of