Charting China's Energy Transition: Constructing and Analyzing a Time Series of Energy Use between 1997 and 2021

Topic:
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Energy transition involves the shift from fossil fuels to renewable and sustainable alternatives. Although annual data on energy use for China exist, they show certain shortcomings. For example, there exists an overestimation in the reported "total energy consumption by sector" in the China Energy Statistical Yearbook. A primary contribution of this paper is therefore the construction of a time series of Chinaâ€™s sectoral energy use matrix from 1997 to 2021. The data addresses the overestimation issue and provides information on Chinaâ€™s yearly energy use by 47 sectors (including 46 industries and households) as well as 30 energy products. Our applications of the new data are twofold. First, we examine through a shift-share analysis the changes in Chinaâ€™s energy use patterns across different sectors, and preference for energy products. Second, we introduce an energy transition index to quantify China's progress towards sustainable energy systems. This research contributes to advancing our understanding of China's energy transition process. It may assist strategic decision-making to accelerate the transition towards a sustainable energy future.