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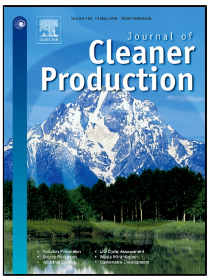

Analysis on the evolution of low carbon city from process characteristic perspective

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Abstract: Developing low carbon city is a global strategy for achieving carbon emission reduction. However, the evolution process of becoming a low carbon city remains unexplored, which is not conductive to the promotion of low carbon city. This study examines the evolution of low carbon city from process characteristic perspective. The evolution processes are analyzed by establishing the relationship between city's economic development and carbon emission performance. By adopting Kaya Identity method, city's emission characteristics in the process of promoting low carbon city are decomposed into energy structure, energy intensity, economic output, industrial structure and population. The performances of these five characteristics in different evolution processes are analyzed. By using the data collected from case cities of Singapore, Beijing, and New York, the evolution process and the corresponding emission characteristics of these cities have been investigated. The key findings from this study are: (1) a city successively goes through three turning points (TP) and four processes (P-Ⅰ, P-Ⅱ, P-Ⅲ, P-Ⅳ) to shift from carbon intensive to low carbon. (2) Performances of the five emission characteristics for cities vary significantly between