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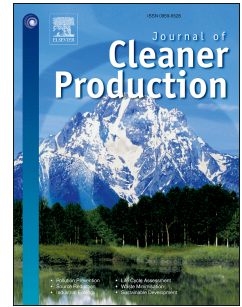
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# Energy Network Analysis of Chinese Sectoral Ecological Sustainability

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## Abstract

Ecological sustainability of the Chinese economy is vital for China as well as for the world. By integrating environmental input-output analysis, energy theory, and a complex network model into one framework, this paper explores Chinese sectoral ecological sustainability with the most recent 2012 input-output table. The results show that there are significant differences in energy intensities among sectors. The non-metal mining sector is the most energy-intensive sector at  $6.06E+17$  sej/10000 Yuan, followed by the metal mining sector. Additionally, output connections have a positive impact on the energy yield ratio, input connections exert a negative impact on the energy yield ratio, and PageRank centrality has a positive effect on the environmental loading ratio. This paper updates the Chinese sectoral energy assessment, identifies key sectors in the Chinese ecological network, and analyzes the impact of network indicators on sectoral energy performance. These analyses will be useful in updating the guide for adjusting industrial structure in China.

## Keywords

Energy; network; Chinese sectors; input-output table; sustainability; environmental accounting

## 1. Introduction

Currently, China is the second largest economy, the largest energy consumer, and the largest carbon emitter in the world. Achieving sustainable development is critical not only to China but also to the world. As a macroeconomic policy tool, the guide for adjusting industrial structure is issued and updated to promote Chinese sustainable development (National Development and Reform Commission, 2005). From the perspective of ecologic economics, one requirement for updating the guide is the reasonable assessment of sectoral ecological sustainability and

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