

Research and Practice of Synergy Control of Pollution and Carbon in “Three Lines and One List”: A Case of Jinan

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Abstract

This study delves into the coordinated management of pollution reduction and carbon emissions within the ecological environment zoning control framework, with a focus on the city of Jinan. The primary objective is to enhance the precision of local environmental management by incorporating multi-source monitoring data into the existing control system and developing a high spatial resolution PM_{2.5} concentration dataset. The research findings demonstrate that the integration of detailed air quality data significantly improves the specificity of environmental quality targets at the district, township, and industrial park levels. This approach allows for a more accurate match between these targets and the corresponding control units, thereby facilitating more effective environmental governance. A novel spatial synergy assessment method for atmospheric pollutants and CO₂ is introduced, enabling the identification of areas with high emissions of both. This method provides a valuable supplement to the current practices for delineating key control areas, potentially leading to more targeted and efficient environmental policies. Furthermore, the study proposes a straightforward and versatile method for optimizing environmental admission lists. This method is characterized by its simplicity, broad applicability, and strong operability, making it a candidate for national promotion. It is especially recommended for cities or regions with the capacity to adopt an integrated evaluation method that assesses both PM_{2.5} concentrations and CO₂ emissions. The research underscores the significance of aligning environmental policies with coordinated emission reduction goals, suggesting that such an integrated approach can lead to more effective environmental management strategies. This aligns with the broader objectives of promoting low-carbon development and implementing green management practices across urban areas.

Keywords

Three Lines and One List, Pollution Reduction and Carbon Reduction, Synergy Control, Technology Approach