

論文の英文要旨

論文題目

Energy Transition Policies in China:
Analysis from the perspective of social equity and energy justice

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This doctoral research looks into the energy transition policies (ETPs) in China, mainly from the perspective of social equity and energy justice. Social equity and justice aspects of ETPs have been attracting increasing interest globally, but these aspects have not been thoroughly looked into previously in the context of ETPs in China. This research fills the gap by zooming in on the ETPs in China. This research looks into the involvement of social equity and energy justice concerns, reflected by specific concerns that are addressed in energy transition policy design and implementation. This research aims to reveal specific concern contents that are highlighted, the implementation progress, and the still-existing problems. In this study, policy designs and implementations related to disparity reduction in the energy transition are sorted into the cluster of social equity, and the policy designs and implementations related to addressing concerns about availability, affordability, and responsibility are sorted into the cluster of energy justice.

This study combines the global definition of social equity and energy justice, as mentioned in the English literature, and the domestic interpretations and explanations according to the 12th official Five-Year Plan of China. This study narrows down from the overall national plan to energy transition policies and aims to reveal regional differences, specific concerns, and changes over time in energy transition policy design and implementation in China, to realize the following research goals. Research goal 1: To reveal specific social equity and energy justice concerns reflected in energy transition policy design and their changes. Research goal 2: To reveal the progress of addressing specific social equity and energy justice concerns in energy transition policy implementation and still-existing problems. *ex ante* analysis is conducted with quantitative methods applied, based on materials available before policy implementation, and *ex post* analysis is conducted based on materials available after policy implementation, with qualitative methods applied.

This research mainly consists of the outcomes of three studies. First, a bibliometric analysis from a global point of view, as a literature review; second, an *ex ante* analysis concentrated on policy design by making use of text mining methods; third, an *ex post* analysis conducted by comparing the policy design and implementation progress, applying a modified Policy Modeling Consistency index model, and the grounded theory.

In the bibliometric part, a bibliometric overview of the global research articles about ETPs is presented. provides supporting analysis results, comparing global research related to energy transition policies written in English with the studies in Chinese, revealing the role of China in global research, as well as the gap between global studies and those mainly focusing on the specific case of China. This part also reveals the increasingly important role of the perspective of social equity and energy justice, under a large background of energy transition research in the field of social science. Based on the analysis of relevant scientific research on ETPs, this part reveals

the scientific production changes, the major contributors (e.g., journals, authors, and countries) to the literature on ETPs, as well as the primary thematic areas that emerge from the scientific literature on ETPs, including social equity-related topics as one of the increasingly important topics.

In the *ex ante* part, a text mining analysis of ETPs in China is presented. The analysis shown in this part reveals that the policy design is increasingly concerned with social equity and energy justice concerns, with more detailed and specific mentions. In the 12th FYP (2011 to 2015) period, social equity concerns emerged as an important aspect in the progress of energy transition, but the attention paid to it is still limited, not deep or comprehensive at this stage. In the 13th FYP (2016 to 2020) period, the policies became more detailed, specific, and practical. In the 14th FYP (2021 to 2025) period, there are a larger number of policies, especially those announced by the local governments in the Northeastern and Western areas. The Northeastern and Western areas play large roles, with importance attached to residential benefits and rural development.

In the *ex post* analysis part, the qualitative analysis containing the comparison between policy design and outcomes is conducted by applying a modified Policy Modeling Consistency (PMC) index model and grounded theory to reorganize materials and draw conclusions. This part reveals that social equity and justice concerns mentioned in policy design are partly addressed in policy implementation, with achievements in improving residential life quality and supporting rural development. However, there are still problems left. This part also added modifications based on the existing Policy Modeling Consistency (PMC) index model, the policy documents, and related newspaper articles. In this study, the following 3 aspects are added to the PMC analysis framework: first, the global aspect, containing external factors from a global view; second, the aspect of connections, based on contents that show connections among stakeholders; third, the aspect of conflicts, containing elements that conflict with the energy transition strategy.

Based on the analysis results, the research goals are reached. Research goal 1 is reached by revealing the involvement of specific social equity and energy justice concerns and their changes in energy transition policy design. In this study, energy transition policies subject to analysis involve increasing, expanding, and increasingly specific social equity and energy justice concerns by attaching importance to residential benefits, rural development, and the welfare of disadvantaged groups. The policy texts announced by the local governments in the Northeastern and Western areas show that they play larger roles in social equity and energy justice concerns. Residents are mentioned as important stakeholders, and supportive plans by governments are frequently used as policy tools. Residential heating systems and migration affairs related to hydropower construction are mentioned as important concerns specifically.

Research goal 2 is reached by conducting comparisons between policy design and implementation. As for the progress of energy transition policy implementation in areas playing the role of the major energy supplier and demander in China, respectively, the energy distribution infrastructure construction and equipment replacement for cleaner and safer residential energy usage are partly accomplished. Moreover, financial burden concerns in the residential sector and energy security risks due to global energy market changes still exist, reflecting affordability

concerns.