

[POLITICAL COORDINATION OF MULTI-PARTICIPANTS IN SOLAR PHOTOVOLTAIC'S POLICYMAKING PROCESS IN CHINA]

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Overview

With energy shortages of fossil fuel consumption being exacerbated, an improved energy system from fossil fuels to renewable energy is critical to achieving net-zero emissions. While solar photovoltaic (PV) has become the cheapest way to generate large-scale electricity [1], how to optimise solar PV remains a critical issue for countries, especially developing countries, to make support policies.

Primary research on solar PV emphasised economic profits, focusing on business models, solar PV firms' performance and market development (e.g., massive production, global trade). [2]–[5] They usually ignored political interaction among enterprises, governments and society. Moreover, policy studies on solar PV emphasised the effectiveness of support policies (e.g., demand-pull policies, technology policies and subsidy policies) by building quantitative models.[6]–[10] A few discussed solar PV's policymaking process. Limited by interviews and other qualitative methodologies, previous research discussed political challenges [11], ignoring political coordination.

Therefore, the purpose of this paper is to apply quantitative methodologies and systematically investigate the evolution of political coordination of multi-participants and their relationship in China, which has made a significant contribution to renewable energy development with continuous supportive policies.

Methods

This research combined network analysis (M1) and policy document similarity analysis (M2) by tracing solar PV's policymaking documents in China (issued during 1994-2020). We collected 413 policy documents during the period that mentioned “solar PV” from State Council Policy Document Library and other departmental websites by searching the keywords “renewable energy”, “solar energy”, “solar PV”.

In M1, SPV's policy participant network of China's central government is visualised by nodes (policy actors) and lines defined by political interactions with jointly issued documents. This paper also divided policy participants in solar photovoltaic issues into different based on the modularity calculation of social network analysis.

In M2, we analysed and compared policy document similarity of 12 Five-Year Plans (FYPs, from 10th to 13th) in three series, including FYPs for national economic and social development, FYPs for energy development, and FYPs for renewable energy development.

Results

In M1, we found that policy participants tend to make joint documents with ones at the same administrative level. Driven by complex systems, solar PV are jointly shaped by multi-participants, including administrative departments, industrial organisations/state-owned enterprises and research institutes/think tanks. While the number of policy participants has increased from five before 2000 to forty-one by the end of 2020, the type of policy participants has diversified, from administrative departments to industry organisations and research institutes/think tanks.

Meanwhile, China's solar photovoltaic policy engagement network has formed into three policy subsystems with the National Energy Administration (NEA), National Development and Reform Commission (NDRC), Ministry of Housing and Urban-Rural Development (MOHURD) as core departments, respectively.

In M2, we also found that policy participants tend to follow policy decisions at a higher administrative level or, especially, political coordination of the National People's Congress (NPC), State Council (SC), and NDRC. The

more participation of higher administrative departments, the more continuous national goals are made, the more comprehensive policy is.

It is a fundamental approach for China to achieve national goals of guaranteeing energy security, especially when the higher administrative department participates in and values national economic development higher than specific development issues, only if an industry crisis or new problem occurs. There M2 filled the gap of M1.

Conclusions

This study systematically illustrates the dynamics of political coordination driven by changes in policy participants and their interactions. With the domestic solar PV systems development, political coordination has been developed continuously under a complex energy system. Policymaking changes are jointly shaped by national goals, participation of actors, industry changes. Thus, the government could explore the possibility of trans-departmental political coordination in the policymaking process of the energy transition. Moreover, the national goal is another critical tool for the government to promote political coordination in the face of a complex energy system.

This study only focuses on political coordination through documents analysis, therefore, limited by data sample and methodology. However, the policymaking is much more complicated, filled with the political competition of various lobbies.[12], [13]

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