

State versus Market in China's Low-Carbon Energy Transition

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Overview

This paper assesses the outlook for China's ongoing market reforms to the energy sector and the implications for the low-carbon energy transition. China's efforts to constrain the carbon emissions from its energy sector to date have relied largely on transitional administrative measures backed by generous financial support. However, this approach is encountering ever-diminishing returns. In response, the government has been introducing a series of market reforms. These include competitive tenders for shale gas acreage, emissions trading pilot markets, competition in electricity markets, third-party access to pipelines, renewable energy reverse auctions and green certificate trading. However, the energy sector remains dominated by state through central and local government agencies and state-owned enterprises whose priorities and behaviours are changing only slowly. In institutional terms, this results in incompatibility between, on the one hand, the formal rules that govern transactions and, on the other hand, the wider institutional environment and the informal rules that govern behaviours. Consequently, progress in implementing these market reforms will be slow and the outcomes uncertain.

Analytical Framework

The paper applies neo-institutionalist concepts (e.g. North, 1990; Williamson, 2000) to the challenge of introducing market mechanisms into China's energy sector, with a particular focus on electricity. The principal motivations for introducing competition in the power industry are to enhance economic and operational efficiency, improve the quality of service and promote innovation and to pass the advantages to consumers and wider society. Key steps include: the unbundling of generation, transmission, distribution and retail; privatisation of the state-owned enterprises; and the creation of an authoritative and well-resourced regulatory agency. Fundamental to success is the removal of government from the operation of energy companies. The introduction of market mechanisms requires a change from vertical command and control to the regulation of horizontal relationships. This, in turn, requires a stable legal framework, contractual sanctity and clear property rights. The process of introducing competition is necessarily staged and requires strong political commitment throughout. Similar logics apply to carbon emissions trading systems which are, in principle, the most economically efficient way of achieving a given emissions reduction target. These trading systems require careful planning and strong institutional support, particularly with respect to the allocation of allowances, oversight and compliance.

The institutional environment embodied in China's energy sector continues to carry features of the Leninist planning systems that previously applied to the whole economy (Andrews-Speed and Zhang, 2019). However, the longstanding structures and systems of government persistently undermine effective policy implementation because of weaknesses in coordination. This combination of features has long been referred to as "fragmented authoritarianism". At the same time, the legal system is immature, there is no tradition of independent regulation, and capacity to govern sophisticated policy initiatives is weak.

Consequently, the policy paradigm for the energy sector has focused on supply security through the central role of the state. Only recently have air pollution and carbon emissions become priorities. The relative importance of energy in the agenda of the central government varies over time, depending on domestic and international events. Despite an apparently powerful central government, policy making and policy design are highly political processes subject to negotiation and bargaining. As in other sectors, the government often carries out local pilot projects to test policy proposals. Even with the results of these pilots, implementation of the final policies commonly encounters severe challenges arising from a mix of poor policy design, ambiguous rules and actor behaviour.

Results

China's power sector underwent a phase of restructuring between 1997 and 2003 that resulted in the separation of generation from the rest of the industry to create five large state-owned generating companies. Transmission, distribution and retail remained integrated in two large, state-owned grid companies. Reform was then halted. Consequently, the state has remained deeply involved in the power sector, through central and local government, and through its majority ownership of the major power companies and major energy intensive industries.

In its 2015 document “Opinions on Deepening the Reform of the Electrical Power Industry”, the State Council emphasised the need for the market to play a decisive role in resource allocation, whilst also adhering to the principles of a socialist market economy. Specific steps to be taken included: reforming tariffs so that they are set by market forces; reforming the trading system to allow bi-lateral trading, to promote inter-regional trading, and to launch markets for ancillary services; enforcing third-party access to the grid; and opening distribution and retail to new actors. In the meantime, the government announced in 2017 that it would launch a national carbon emissions trading system in 2020, drawing on the lessons from nine pilot carbon emission trading markets that had been operating since 2013.

These and other initiatives to introduce market forces show that China’s government is seeking new ways to govern the energy sector. However, the track record of such schemes has not been promising, as illustrated by these examples:

- The competitive tenders for shale gas licenses in 2011 involved only the least attractive acreage, as the national oil companies (NOCs) held the rights over the prospective areas and no effort was made to enforce relinquishment.
- The pilot carbon markets operating since 2013 had little impact on emissions. Oversupply of allowances led to a low carbon price and low liquidity. The institutional infrastructure was weak, leading to poor monitoring, reporting, verification and compliance.
- Third-party access to oil and gas pipelines has not been enforced due to resistance from the NOCs, despite “Trial” measures being introduced in 2014. “Final” measures were published in July 2019. The government plans to remove the pipelines from the NOCs and create a national pipeline company. However, NOCs will retain shares in this company.
- Steps to create competition in power generation and distribution have been subject to interference from local government. Distribution has not been separated from transmission, which allows the incumbent grid companies to maintain their strong position in both distribution and retail. Finally, the balancing areas remain under the influence of the provinces, thus constraining inter-regional trading.

Looking ahead, the risks for these market initiatives are significant. Central and local governments may not remove themselves sufficiently from the operation of the markets and may continue to load the SOEs with non-commercial obligations. If the SOEs are not privatised, their soft budgetary constraints, non-transparent accounting and links to government will shape their behaviours in these new markets. They are likely to be able to continue acting in an uncompetitive way, especially if the legal and regulatory framework is weak. A further set of risks arise if the individual market initiatives are not designed in such a way as to coordinate effectively with each other and with the pre-existing administrative measures.

Conclusions

The outlook for China’s ongoing market reforms to the energy sector is quite uncertain, as are the implications for low-carbon energy transition. It is likely that policy design and implementation challenges will persist and that the state will remain involved in many forms. Policy implementation will be incremental (“muddling through”; Lindblom, 1959), and progress towards achieving the goals of economic efficiency and emissions reduction will be slow. A key question is whether the government will remain committed to these policies given other pressing economic and political priorities.

References

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