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Tsai, Chung-min

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The Paradox of Regulatory Development in China
The Case of the Electricity Industry

by

Chung-min Tsai

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

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of the

University of California, Berkeley

Committee in charge:

Professor Lowell Dittmer, Chair

Professor Steven K. Vogel

Professor You-tien Hsing

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by Chung-min Tsai

Abstract

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Professor Lowell Dittmer, Chair

This study focuses on regulatory development in China. I seek to explain the following question: Why have Independent Regulatory Agencies (IRAs) failed to function? While an IRA, defined by its institutional autonomy and specialized authority, is regarded as the most effective regulatory device, my research demonstrates that an IRA in fact runs a higher risk of being captured in transition economies. I distinguish between independence in form and independence in practice. I argue that a regulatory agency requires practical independence in order to make state regulation work and formal independence has produced regulatory capture. I construct an analytical model of “embedded regulation dynamics” to illuminate how the IRAs are besieged by other government entities and vulnerable to capture by business groups. I conclude that the IRA model has limited applicability in the Chinese context.

China’s State Electricity Regulatory Commission is created as a model IRA for other industries, but its poor performance and regulatory capture reveal the reality behind the myth of the IRA. The SERC suffers from insufficient regulatory authority and its operational abilities have been ironically restricted by its institutional autonomy. Moreover, the power enterprises with different ownership structures delineate the various routes by which the industry can involve itself in the policy-making process. Consequently, the IRA is captured indirectly by the industry through state administrative procedures and institutional defects. Moreover, a comparison to the regulatory situation in the civil aviation and telecommunications industries illuminates that the regulatory agencies are able to function effectively and ensure a stable market and promote competition without organizational autonomy.

To my parents

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Abbreviations

Civil Aviation Administration of China	CAAC
Chinese Communist Party	CCP
China Eastern Airlines	CEA
China Electricity Council	CEC
China Guodian Corporation	CGDC
China Huadian Corporation	CHDC
China Power Investment Corporation	CPIC
China Southern Airlines	CSA
China Southern Power Grid	CSPG
Employee Stock Ownership Plan	ESOP
Independent Power Producer	IPP
Independent Regulatory Agency	IRA
Ministry of Electricity Industry	MEI
Ministry of Energy	MOE
Ministry of Environmental Protection	MEP
Ministry of Finance	MOF
Ministry of Information Industry	MII
Ministry of Industry and Information Technology	MIIT
Ministry of Post and Telecommunications	MPT
Ministry of Water Resources and Electricity	MWRE
National Development and Reform Commission	NDRC
National Energy Administration	NEA
National Energy Commission	NEC
National Energy Leading Group	NELG
National People's Congress	NPC
Organization Department of the Chinese Communist Party	ODCCP
Provincial Development and Reform Commission	PDRC
State-owned Assets Supervision and Administration Commission	SASAC
State Development Planning Commission	SDPC
State Environmental Protection Administration	SEPA
State Economic and Trade Commission	SETC
State Electricity Regulatory Commission	SERC
State-owned Enterprise	SOE
State Grid Corporation	SGC
State Power Corporation of China	SPCC
Ultra-high Voltage	UHV

CHAPTER ONE INTRODUCTION

A healthy supervision scheme is crucial following the government's weekend move to break up the State Power Corp of China.....A failure in supervision will spoil the whole reform.....A regulatory commission will also be established to become an industry watchdog. It is supposed to stipulate the rules of the industry and suggest electricity tariff rates to the State Development Planning Commission.....the watchdog will be capable of overseeing the industry.

China Daily, December 31, 2002

Reforms of the mainland's electricity sector aimed at breaking the monopoly of the power conglomerates have failed because of inadequate government support and an ineffective regulatory system, an industry watchdog report says.

South China Morning Post, December 19, 2005

I. Introduction

“The electricity reform was doomed,” argues an industry veteran in a report, entitled “Power Sector Reform in China was Basically Unsuccessful,” to the State Council.¹ His criticism centers on the fact that regulatory oversight has been ineffective while the central government has met strong resistance to invoking competition. When the Chinese government promulgated the “Circular Concerning the Reform of the Electricity Industry Structure (*Dianli tizhi gaige fang'an de tongzhi*)”² in 2002, it signified a historical milestone and turning point not only in the power industry but across industrial sectors in China. The document showed the state's determination and defined a concrete agenda for the first time to reform the regulatory system and to introduce an independent regulatory agency (IRA), the State Electricity Regulatory Commission (SERC). Subsequent progress, however, has not proceeded as proposed and stagnation and uncertainty have followed. Even though the electricity industry has been comprehensively restructured twice and acquired an IRA, I argue that China's electricity reform has not advanced but rather regressed. State initiation of liberalization has not resulted in better market development and greater competition, and the efforts to end the monopoly have actually

¹ “Zhongguo dianli gongye tizhi gaige jiben bu chenggong (Power Sector Reform in China was Basically Unsuccessful),” *21 Shiji Jingji Baodao (21 Century Business Herald)*, December 17, 2005, <http://finance.sina.com.cn/chanjing/b/20051217/10262206701.shtml>, accessed February 4, 2009.

² The State Council [2002] No. 5, also called “Document No. 5.”

led to state-managed oligopoly. The SERC has failed to perform its functions and lay a basis for continuing reform since its inception. There is nothing unusual about persistent opposition from vested interests; nonetheless, this regulatory dysfunction is paradoxical when considering the institutional design of an IRA that has been adopted to foster the market and oversee market operation.

In contrast, the presence of a functioning market and competitive prices demonstrates that similar reform schemes have gone relatively well in the industries that have no independent regulators, such as civil aviation and telecommunications.³ Ironically, the reality shows a significant inverse trend between the effectiveness of state regulation and the existence of an autonomous regulator. It is therefore puzzling that an IRA does not lead to more effective regulation.

In this context, “effective regulation” connotes success in performance of the responsibilities the central state has delegated the regulatory agency. For the regulatory agencies in China’s industrial sector, such effective regulation is manifest in: 1) positive efforts to develop the market mechanism and safeguard fair competition between market entities; 2) efficacious enforcement of regulatory requirements against violators and scofflaws; and 3) the creation of favorable outcomes for consumers without discouraging the development of businesses. Unfortunately, China’s electricity regulator failed because it was unable to achieve these goals. The institutional constraints crippled the effectiveness of the SERC, which the Chinese state had created to expedite the reform process.

As an essential element in the rise of the regulatory state model, IRAs are believed to be a better institutional arrangement and have been extensively adopted, especially in Western countries. IRAs are created to increase policy credibility and enhance regulatory efficiency because they enjoy autonomy from elected politicians and have expertise in supervising specific objects (Majone 1996; Majone 1997; Gilardi 2002). However, the case of the SERC poses a challenge to the applicability of IRAs in China in particular and the regulatory state model in general.

This dissertation asks why state regulation is less effective in an industry with an independent regulator than it is in other industries lacking it. This result is unexpected given the findings from prior empirical experience with regulatory reform and the existing literature. Why have we not witnessed a viable SERC in China’s power industry? What can explain the unsuccessful attempts to fulfill its responsibilities and the structural predicaments that face the new state regulator? Do IRAs really facilitate state supervision and ensure a just and stable

³ Despite the differences in the fundamental natures of the industries, the Chinese government applies a similar logic to reform and aims at attaining comparable goals. Hence, it is justifiable to examine regulatory effectiveness across industries in terms of their regulatory systems.

marketplace for the involved parties? How do IRAs function while confronting political interference from other government branches? By exploring the preceding questions, this dissertation aims to achieve two broader goals: 1) to analyze the regulatory development of the power sector and provide a general framework for understanding the Chinese industrial reform and the changing state-industry relationship in the economic transition from central planning to market regulation; and 2) to extend the discussion of the regulatory state model beyond Western countries and illuminate the regulatory development and adoption of IRAs in post-socialist countries in which state ownership remains pervasive and IRAs' independence is decided by its distance from other government entities (not from elected politicians).

II. Why Does the Development of a Regulatory System Matter in China?

Before moving into a discussion on micro-level agency performance, we should first identify how it is essential to recognize the development of regulatory institutions in China. In adopting a gradualist approach to replace a rigidly planned economic system with a market economic system, the Chinese state has demonstrated how capable it has been in managing the reform process. Nonetheless, a rapidly evolving situation requires the Chinese state to distinguish its role vis-à-vis the industry. China is now at a crossroad and in need of a new direction in which to position itself while mapping out further reform schemes. Whether the regime is heading toward “socialism with Chinese characteristics” in general or a “socialist market economy” in particular, a major task for the central government is to adjust its role and redesign its administrative structure to enhance the sinews of governance and respond to the changing nature of economic growth. In examining development experiences in other countries to glean beneficial information, the Chinese state has a choice between two models: developmental state and regulatory state. I contend that the developmental state model is not an enlightening paradigm and that the regulatory state model sheds more light on China's shifting government-business relations.

Model of Developmental State

The developmental state model, originating from identifying the causes of rapid economic development in Japan after WWII, seems to Chinese leaders to offer a good option. It entails some distinctive characteristics: a legacy of mercantilism, the important role of finance, control of foreign capital inflow, autonomous and capable bureaucracy, a close relationship between the state and industry, a labor-repressive regime, a favorable international environment, and market

conformity.⁴ Taiwan and South Korea have generally followed this model and achieved extraordinary success, even though certain disparities existed (Wade 1990; Amsden 1989; Hsueh, Hsu, and Perkins 2001). In these countries, the central governments take an interventionist role to sustain industrialization and supervise industries (Chang 1999). Since there is no real free market, regulation in developmental states focuses on cooperation between the state and the firms and the implementation of policy goals. State autonomy, however, brings little public accountability and transparency. In the 1980s, the Japanese government initiated regulatory reform to raise the level of competitiveness, but it produced more regulation rather than reducing government intervention in business (Vogel 1996; Pempel 1998).

Thus, is this model instructive to the current Chinese state? I contend that China does not fit the developmental state model because its institutional and political configuration fails to fulfill the requirements. In China, the central government faces challenges from local governments after decentralization and reform policies are a mixture of various strategies beyond the pure goals of economic development. Fragmented political authority and the involvement of various government institutions hardly give the state a coherent and comprehensive leading role in directing the economy. In the emerging private sector, firms compete freely in the market so the state is expected to play a neutral role and offer no preferential policies. In the diminishing but still-robust state sector, the state and enterprises are not only mutually beneficial to each other in attaining their respective goals but tied together within a hierarchical framework. Moreover, Japan's long recession and the Korean financial crisis of 1997 both cast doubt on the sustainability of the model.

By examining the latest three rounds of administrative reform in 1998, 2003, and 2008, we find that the Chinese government has shown a clear intention in striving to transform its role from controller to regulator and build up its regulatory capacity.⁵ In managing the industrial sector and deciding future reform guidelines, certain actions were taken, including reallocating regulatory authority, establishing new regulators, and empowering existing regulatory agencies. There was unremitting, extensive discussion in the political and scholarly discourse on how best to promote the role of state regulation in industrial reform, especially in the monopoly industries (Wang et al. 2004; Wang et al. 2005). International organizations and foreign experts also provided input through cooperative projects and academic conferences.⁶ Moreover, while

⁴ These points are concluded from Johnson (1982), Deyo (1987), Amsden (1989), and Woo-Cumings (1999).

⁵ The abolishment of many industrial ministries in the reform of 1998 is regarded as the commencement of a new form of government-business relations in which the state does not administer the industries comprehensively.

⁶ For example, an international symposium on electricity regulation was held in Beijing in September 2003. The participants included experts from the World Bank and Asian Development Bank and scholars from the US, UK, Australia, etc. Similar international conferences on the topic of state regulation and market competition were held in the telecommunications and civil aviation industries as well.

officially joining the World Trade Organization in December 2001, China committed itself to independent regulation: i.e., that “for the services included in China’s Schedule of Specific Commitments, relevant regulatory authorities would be separate from, and not accountable to, any service suppliers they regulate, except for courier and railway transportation services.”⁷ In consideration of this rising trend, I argue that the regulatory state model inspires thought about the changing relationship between the state and market and that the regulatory state model introduces a new direction for the next stage of reform in China’s industrial sector.

Model of Regulatory State

The rise of the regulatory state has its origin in American political development dating back to the Progressive Movement and the New Deal. When facing an economic crisis, the government decided to adopt an administrative mechanism to control business through special agencies backed by legislation. Neutral, professional administrations that were above party strife and sectional interests emerged to preside over certain industries.⁸ The rudimentary principle of state regulation is that the state will interfere only if the market mechanism fails to function. The American-style regulatory state is characterized by private ownership, market operation, and IRAs. With their isolated status and a legalistic tradition, autonomous regulators have become a practical tool of economic governance. They were established in monopoly industries and the financial sector to regulate competitive behavior among private actors.⁹ In general, a mature regulatory system had taken shape in America by the mid-twentieth century. In the 1960s, the American regulatory state entered into a new age of social regulation in which innovative regulatory institutions were created to supervise a wide swath of issues, such as safety, health, and the environment, beyond the original economic focus in particular sectors. Since the trend of globalization appeared in the early 1970s, American regulatory standards and institutional designs have spread out and deeply influenced the rise of the European regulatory states, especially the British regulatory state.¹⁰

⁷ “Report of the Working Party on the Accession of China,” Document # 01-5314 WT/MIN(01)/3, November 10, 2001, http://docsonline.wto.org/GEN_searchResult.asp, accessed September 13, 2008.

⁸ The first independent regulatory agency at the federal level in the United States of America, the Interstate Commerce Commission, was established in 1887 according to the Interstate Commerce Act. Later, the Food and Drug Administration and the Fair Trade Commission were established in 1906 and 1914 respectively.

⁹ In the monopoly industries, the Federal Power Commission and Federal Communications Commission were created in 1920 and 1934 respectively. The former was reorganized as Federal Energy Regulatory Commission in 1977. In the financial sector, the Securities and Exchange Commission appeared in 1934.

¹⁰ On how American regulatory philosophy and practice have influenced European policy-makers and the sudden growth of statutory regulation in Europe, see Majone (1996). In addition, the rise of the European Commission (now European Union) as regulator is another critical phenomenon which promotes the adoption of a regulatory state model in European countries. Since the European Commission has a different political configuration and judicial composition, I focus my discussion on the case of Britain.

While the American government was clarifying its relationship with the market mechanism and private sectors and developing its regulatory capacity, on the other side of the Atlantic, the British government adopted the strategies of public ownership and the Keynesian welfare state. The British state played a combined role of owner, manager, and distributor, not an American-style regulator. The great economic crisis of the 1970s and a deep institutional crisis in British ‘club government’ immensely changed the policy direction from an interventionist state to a regulatory state and enhanced the power of rule-making (Moran 2003).¹¹ The British government implemented an ambitious program of privatization and deregulation in the last two decades of the twentieth century.¹² By adopting a radical policy to sell state assets at large, the state tried to tackle the problems of both economic efficiency and public accountability. Public ownership, as the older form of regulation, had proved ineffective. Implementation of privatization and deregulation, however, has not solved the problems by withdrawing the state from command. It has unleashed the irresistible power of business. The British-style regulatory state is a state that takes on the new responsibilities of controlling monopoly, promoting competition, and managing the social damages caused by externalities (Prosser 1997). Moreover, two noteworthy phenomena arose with the transformation of state-business relations -- an explosion of audits and cooperation between the regulator and the regulated.¹³

The emergence of new governance exhibits four distinctive features: privatization, delegation of authority to autonomous regulators, formalization of rules and codification of responsibilities, and proliferation of technologies of regulation (Levi-Faur and Gilad 2004, 105-7, 112-113). Not only does it deal with the relationship between the government and industry, the rise of the British regulatory state also identifies a comprehensive managerial reform within the government. What was regarded as administration in the past is brought into the regulatory framework, and the regulatees are now public organizations (Hood et al. 1999).

In Britain (also true in most European countries) the development of the regulatory state entails the significant reconfiguration of the state.¹⁴ This reconfiguration includes both the emergence of new government institutions and reallocation of power among existing actors, induced by reform strategies during the economic crisis. The role of the state has been

¹¹ The term “club government” is advanced by Marquand (1988, 175-206) and indicates the striking features of British government as an oligarchic, informal, and secretive operation that is highly pervasive and anachronistic.

¹² Majone (1997, 143) suggests that using the term ‘deregulation’ to describe what happened in Europe is misleading. What we observed is never a return to a situation of *laissez-faire*, but rather an impressive growth of regulatory capacity. So, it is a combination of deregulation and reregulation.

¹³ Power (1997) finds the explosion of auditing in British society as a way of incorporating the public voice; however, it places more emphasis on the ritualized practices of verification over the professional judgment that results in formalization. Hawkins (1984) delineates that the interaction between the regulator and regulated heavily relies on persuasion and informal exchange.

¹⁴ More information about the regulatory state in Germany, see Müller (2002).

transformed from interventionist to regulator by enhancing the power of rule-making (Majone 1997). Interestingly, although regulatory development has been greatly influenced by the American model, deregulation in Britain describes a very different story, one which means not to remove restrictive state regulation but to further develop regulatory capacity to manage these newly-privatized sectors. The delegation of authority to independent institutions operating at arm's length from the state is a key element in the reform project. Hence, deregulation has not marched as anti-regulation rhetoric has proposed, and has been in fact a combination of liberation and reregulation (Horwitz 1989, Vogel 1996). With the development of technology, globalization of regulatory culture, and changes in the macroeconomic environment, the states have adjusted their relationship with business and reformed the regulations. Drawing from the debate on the cycle of regulation, deregulation, and reregulation, we find that the controversy is not on the extent to which the state regulates the market, but on the position the state takes to manage its relationship with industry.

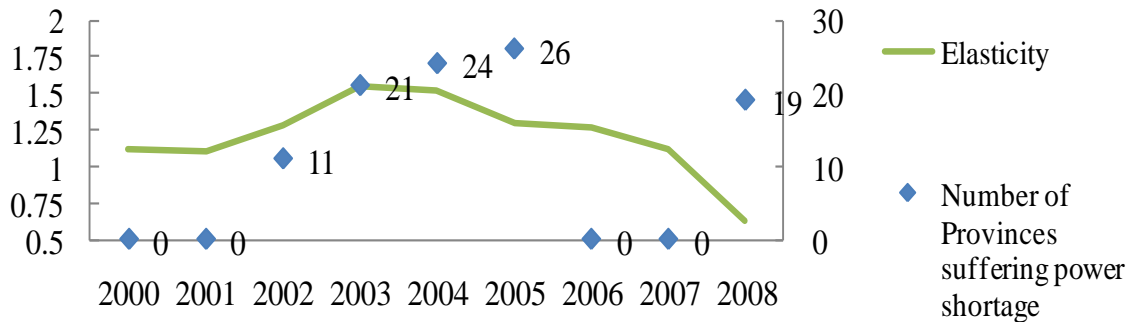
Similar to Britain, the Chinese government adopted large-scale privatization to get rid of bad state assets in the late 1990s. In the thriving private sector, the state has morphed from being both owner and manager to being only a regulator. In the remaining influential state sector, the state has concentrated public ownership in a professional government body and delegated the authority to regulatory institutions; namely, it separates the roles of owner and regulator. The IRA has either appeared or been set as the ultimate goal of reform in various industries to promote effective state regulation and ensure a reliable market. Hence, although macroeconomic circumstances are not all alike, the American- and British-style regulatory states offer China beneficial experiences and guidelines to develop a modern regulatory mechanism that fits its unique political and economic system. It is too early to argue the rise of the Chinese-style regulatory state but, undoubtedly, regulatory reform has been initiated to respond to shifting macroeconomic circumstances in China.

III. Regulatory Predicaments in the Electricity Industry

As the only industry that has an autonomous regulatory agency, China's power sector provides a rich milieu for us to examine regulatory development. Electricity is an essential driver of economic growth. Only if the power supply is secure can economic development be sustained. During the early stage of the reform, the ailing power sector was one of the foremost problems that afflicted the Chinese government and threatened economic progress. Due to productive inefficiency and insufficient investment, power paucity was a major bottleneck impeding economic expansion. Therefore electricity reform was launched and various policies have been

implemented since the mid-1980s. China eventually achieved its ambitious goal when the industrial structure was comprehensively revamped and an IRA was created in 2003. Accordingly, the current institutional framework and modern regulatory system are expected to lay a firm foundation for further development, including a competitive market and higher productive efficiency.

Figure 1-1: Elasticity Ratio and Power Shortage in China 2000-2008



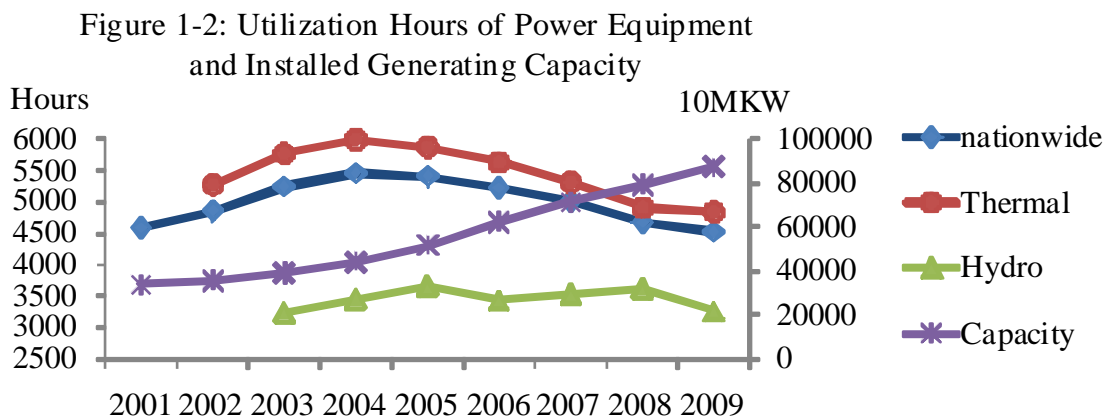
Sources: Chinese Statistical Yearbook 2009, Table 6-7, and various news resources.

In spite of persistent efforts, China's electricity reform has not marched on as smoothly as reformers have proposed. As Figure 1-1 shows, the elasticity ratio of electricity production has been >1 since 2000, which refers to a favorable condition in which the power sector has developed more generating capacity than what is necessary for sustaining national economic development.¹⁵ Nonetheless, a nationwide power shortage first occurred in 2002 and the number of provinces suffering significant brownouts or blackouts kept rising for four consecutive years till 2005. It is difficult to judge electricity sector performance or to measure the severity of power scarcity by simply looking at the relationship between supply and demand. This is due to a distinctive feature of electricity - electricity cannot be stored so that at any time on a grid, there is an instantaneous balance between production and consumption. That is, generation output is generally equal to consumption at all times.¹⁶ Nonetheless, the nationwide average accumulated utilization hours of generation equipment is regarded as an appropriate indicator to demonstrate the dynamics. When it is more than the rational level of 5,000, it indicates a demand-supply imbalance. If it reaches 5,500, it marks a severe supply shortage (Yang, Guo, and Wang 2009).

¹⁵ The elasticity of electricity ratio is an indicator that shows the relationship between the growth rate of electricity production and that of gross domestic production (GDP). In general, the growth rate of electricity production should be higher than that of the GDP to secure the future power supply.

¹⁶ The only gap between the generation and consumption is energy lost during transmission and distribution.

As Figure 1-2 presents, between 2003 and 2007, the electricity sector performed poorly and average utilization hours were always over 5,000. This was mainly attributed to the thermal power sector. Meanwhile, the total installed generating capacity has been rapidly increasing since 2003.¹⁷ Due to sensitivity of hydropower performance to seasonal flow variations, the annual average hours are rather stable. After temporarily easing in 2006 and 2007, power shortages arose again in 2008 because large-scale natural disasters caused major damage to electricity infrastructure and the difficulty of getting coal forced most thermal power plants to suspend production.¹⁸ While the central government successfully solved the underinvestment problem by liberalizing the industry, this achievement did not translate into a better and more stable power supply. Even though the factors accounting for power scarcity in 2008 are different from those between 2002 and 2005, they both share a similar institutional weakness in ineffective state regulation (Zhao 2004).¹⁹



Sources: China Power Yearbook, various years.

As the major regulator, the SERC is responsible for fostering the power market as a trade platform that enables power producers to compete fairly. The first regional power market was established in Northeast China in January 2004, but it was suspended for few months in 2005. The whole project was again discontinued in 2006 and no date has been set to resume. Another two experiments were initiated in East and Southwest China. The former began trial operations in 2006 and the latter commenced market simulation in 2005. Nonetheless, while the reform

¹⁷ The growth rate of electricity generating capacity reached a record high of 20.3 per cent in 2006; the average between 2003 and 2007 was 14.87 per cent.

¹⁸ ““Feidianxing dianhuang” kouwen diangai xinsilu (“Atypical Power Shortage,” Interrogates the New Thoughts on the Electricity Reform).” *Zhongguo Caijingbao* (China Financial and Economic News), November 8, 2008, http://www.cfen.cn/web/cjb/2008-11/08/content_464303.htm, accessed February 12, 2009.

¹⁹ ““Dianhuang” de zhenzheng pingjing (The Real Bottleneck of ‘Power Shortages’),” *Caijing* 217 (August 4, 2008).

advances, the regulatory problems emerge and the autonomous state regulator fails to perform its functions. China's power reform is trapped in a vicious cycle -- a severe power shortage has led to an inferior environment for market development. A lack of market mechanism and floating tariffs gives the producers no incentives to compete. Therefore, the power generation companies feel it is not necessary to reduce costs and improve efficiency. The passiveness in production further deteriorates power supply. Fixed prices, which indicate predictable profits, also weaken the grid companies' ability to invest in network maintenance and extension. In the meanwhile, macroeconomic factors, including the overheated economy, uncontrollable expansion of high-energy-intensity industries, and restraints derived from the coal industry and transportation department, have also contributed to the degrading supply-demand relations in the power sector. The central government established a new regulatory framework in order to manage the changing government-business relationship and lead the industry toward a more reliable cycle. However, the IRA has been unable to perform its functions and be actively involved in solving the abovementioned problems in the past few years. What has caused the IRA to fail to work?

Given that the state's changing role inevitably involves institutional reorganization, this dissertation departs from the current literature emphasizing macro factors in economic transition in China. Instead, I emphasize individual agencies' activities in response to various institutional constraints associated with the changing governmental structure and state-industry relationship. To clarify the interaction among the government institutions and that between a single organization and business firms, I suggest that the state entails a more complex composition than that of a unitary actor. I shall use the terms "state" and "government" interchangeably to refer to a group of organizations subject to the paramount authority of the central leadership. Any single agency (and the officials in the agency) formulates policies according to the macroeconomic goals set by the central government and performs its tasks in coordination with its colleagues. The bureaucratic politics theory derived from the New Institutional Economics provides this project with an informative analytical tool. By utilizing a neoinstitutional perspective, this dissertation will extend the research on "regulatory capture" in transition economies.

In a transition economy, a functioning market will not spring to life in a free atmosphere while the government simply withdraws from the economy. The abrupt removal of an existing regulatory authority in fact creates room for rent-seeking behavior and political corruption. Only if an adequate regulatory environment is developed can market distortions and abuses be prevented. While loosening its control over the economy, the state has substantive discretion in deciding the role it plays -- either positive or passive -- which in turn poses great policy influence on the national economy. Regulation is an effective tool that can be utilized in both directions. The state is able to lead the industries by issuing restrictive regulations; it however can also

create a liberal business environment by removing the constraints or creating conditions that enhance competition. Departing from the previous ubiquitous state, the government discerns its role in providing an institutional foundation for governing the emerging market and burgeoning corporations, state-owned and private. Thus, building up a corresponding regulatory agency is the essential element that institutes current state-business relations. By offering a model that illuminates the dynamics between the IRAs and other government agencies and between the IRAs and regulated firms, this study calls for a rethinking of the issue of “regulatory capture.” It has been difficult to push through reform policies in a partially reformed economy that has experienced government reorganization and the creation of new IRAs. Such an economy encounters an unavoidable predicament in which the new state regulator is exposed to more interference from other government institutions and is unable to obtain full discretion.

IV. In Search of a Prescription

Regulatory development is one of the major themes in China’s industrial reform. As the policies of privatization and liberalization extend to more industries, an appeal to the state to act as an impartial umpire is outstanding. The traditional approaches to the Chinese industrial reform focus too exclusively on the transformation of the state sector. Their analyses degenerate into a search for a prescription for improving state-owned enterprise (SOE) efficiency, which overlooks the fact that the state is now interacting with both corporatized SOEs and private firms in a marketplace. In this study, I aim to map out empirically the emergence and paradoxes of regulatory agencies in the economic regulation sectors (e.g. natural monopoly and utilities/infrastructure) enjoying certain degrees of autonomy, rather than comprehensively covering government regulation at large.²⁰ Before reviewing the relevant literature, the term “regulatory capture” needs further elaboration. Regulatory capture as used in this study describes a puzzling phenomenon in which an institutionally independent state regulator cannot insulate itself from outside pressures (specifically, from other government entities and the regulated firms), perform its mission and rectify misbehavior by corporations, and make a positive contribution (reducing prices or enhancing service quality) to the consumers. The SERC was established to monitor a restructured electricity industry and is taken as a model for other industries to develop along a similar track. By creating an IRA, the Chinese government is able to legitimate liberalization of the power sector and boost confidence among private investors. Unanticipated consequences, however, are the outcomes of regulatory development. The SERC

²⁰ China has developed the regulatory system in several fields of social regulation, such as food, drug, and environmental protection.

merely focuses on marginal work and has absurdly little influence on the core business. The examination of the SERC presents an intriguing case that illustrates how a regulatory institution per se is the cause of regulatory capture.

The “Interest Group” Theory

An original model of regulatory capture is derived from the “interest group” theory, which emphasizes the role of the interest groups in the formation of public policy. Scholars point out that the regulatory process is captured by business industries because “regulation is acquired by the industry and is designed and operated primarily for its benefits” (Stigler 1971, 3). Regulation is not active state intervention to protect the public interest, but the strategic pursuit of interests by the industry. The regulated industries exert tremendous effort because the relatively low cost of organization will gain favorable outcomes, such as subsidies and higher rate of return, within the regulatory process.²¹ Nonetheless, government officials would not necessarily be in favor of business in arbitrating among the competing interests if the consumers gathered together and offered the incentives to make a departure from the equilibrium (Peltzman 1976, 1989). In view of this, a market for regulation forms and, therefore, regulatory capture is not the inefficacy of state regulation but the outcome determined by supply, i.e., government policymakers, and demand, i.e., industrial producers.²²

This model is challenged by other scholars in that the analysis of institutions is generally overlooked. The regulatory agencies are created and operate in a complex political environment. They interact with both the executive and legislative authorities. Scholars who have adopted the principal-agent approach and focus on bureaucratic politics argue that we should explore the political dynamics of state regulation by considering informational asymmetries and the “supply side” (political and regulatory institutions) in the decision-making process.²³ Interest groups have various means to collude with the regulatory agencies and then to capture the decision-makers’ process. The *raison d’être* of rules and policies becomes the potential for regulatory capture. In a two-tiered regulatory structure, Congress (the “principal”) oversees the regulatory agencies (“the supervisor”) and the industry (the “agent”) and prevents collusion between them (Laffont and Tirole 1991). Under these circumstances, how does the state keep the regulatory agencies politically accountable? Only by means of a combination of political control instruments, such as congressional committees, procedural requirements, and appointments by the president, can the

²¹ In their research, Rasmussen and Zupan (1991) explore which particular policy products the regulators and regulated work together to decide on and how they are chosen from the set of policy instruments. They argue that both parties prefer entry barriers to other policies in general.

²² For more detailed elaboration, see Becker (1983), Posner (1974), and Wilson (1980).

²³ See Moe (1982, 1985, 1987) and Wood and Waterman (1991).

state regulators work properly and be monitored without a specific supervisory institution. But, why does the political authority choose to delegate such far-reaching powers to a technocratic agency instead of making policies and managing the industry itself? This issue touches the very fundamental concern over the necessity of the existence of IRAs. It is not easy to exhaust all the advantages, but a few merits are easily justified. The IRAs provide the advantages of expertise in technical matters, greater policy continuity, and better protection of public interests (Baldwin and McCrudden 1987). Most importantly, they are able to maintain distance from political interference (elected politicians in general) and enjoy the autonomy that government ministries lack (Majone 1997: 152-5). The IRAs have become “one of the most widespread institutions of modern regulatory governance,” and “the use of this kind of institution has mushroomed during the 1980s and 1990s and continues to increase” (OECD 2002: 91). In short, regulatory capture has an institutional root in the regulatory system, and an autonomous regulatory agency is the best solution to this problem.

Following this line of thinking, we shall expect a functioning regulatory institution in China because, in an authoritarian regime, politicians are not under pressure to earn resources, votes, or money for elections. It is justifiable to assume that the regulatory agencies are in a stronger position to supervise the industries, especially these industries in which the state firms are dominant actors. Moreover, to what extent the prosperous private sector is able to lobby the government officials to issue preferential policies remains a question. Given the weak legislature with limited accesses for democratic participation, we should expect China’s regulatory agencies to enjoy a higher degree of autonomy; they are able to enforce rules independently of the input of specific groups. In addition, the Chinese government has not developed a formal channel through which two-way communication can take place between policy-makers and private firms.²⁴ When I query the lobbying behavior of business interests, I do not suggest that this phenomenon does not exist, but I discern a different composition of interest groups that are mainly composed of SOEs, which present a unique style of business lobbying. This dilemma cannot be well addressed by the interest group accounts from the Western experiences.

State Capacity and Regulatory Capability

In contrast to the micro, theoretically-oriented model focusing on the corporations, some scholars adopt a macro, empirically-oriented approach to investigate state capacity and regulatory capability in the fast-changing economic environment. While moving away from the interventionist state, the Chinese government has implemented a series of administrative reforms

²⁴ Study of lobbying behavior in China by Kennedy (2005) is a provocative work and explores business-government relations through the lens of specific policy issues. More attention has been paid to the different but relevant issue of political corruption. See Manion (2004) and Sun (2004).

in which the institutional changes have notably empowered the central government in all aspects (Yang 2004). Unfortunately, various measures of governance confirm the poor performance of government effectiveness and regulatory quality.²⁵ The evidence of the unsustainability of reform strategies demonstrates that the Chinese government is trapped in pervasive corruption and deteriorating governance (Pei 2006). The erosion of state capacity has resulted in an unsolvable contradiction that leads to a vicious cycle in regulatory development. While the central leaders aim to promote economic governance, their need to ensure economic dominance and political stability by continuing to enhance control over state assets hinders regulatory enforcement and stifles competition. In turn, an unruly market and reform stagnation increases the possibility of social unrest, leading to challenges to state governance. The leadership's normative preferences greatly constrain the development of regulatory agencies. Moreover, the regulatory agencies confront the institutional restrictions so that regulatory capabilities are significantly reduced. The powerful, corporatized state firms, the axiomatic party-state structure, legacies of the planned economy, fragmented regulatory authority, and the undeveloped legal system all partially account for the incompetence of regulatory bodies.

Different from their American and European counterparts that face pressure from elected politicians, the Chinese regulatory institutions are exposed to a higher risk of being captured by their fellow institutions that have vested interests. Can the Chinese government adopt an advanced institutional model of the independent regulator as an alternative? Can we then expect more effective state regulation like that observed in Western countries? Advised by international organizations including the Asian Development Bank (ADB) and the Organization for Economic Co-operation and Development (OECD), China created several IRAs as policy transfers “driven by perceived necessity” (Dolowitz and Marsh 2000, 13; OECD 2001; ADB 2002).²⁶ Nevertheless, these autonomous state regulators are immersed in a complex political system and are unable to function well (Pearson 2005). Beyond the macro institutional constraints, they also suffer from micro organizational features such as understaffing, unfavorable personnel arrangements, and insufficient resources. Consequently, the newly-established independent regulators have in fact very limited autonomy and share similar weaknesses and challenges with the non-independent regulatory agencies. Some Chinese scholars propose that an integrated

²⁵ In a “governance effectiveness” index, China earned an estimate of 2008 is 0.24 and was at the 79th percentile rank, similar to the Central African Republic, Jordan and Turkey. In another index of “regulatory quality,” China received an estimate of -0.22 and was at the 112th percentile ranked, similar to that given to poorly-regulated countries such as Dominican Republic, India, and Serbia. See Kaufmann, Kraay, and Mastruzzi (2009).

²⁶ China also made commitments concerning the impartiality of the regulatory agencies in its World Trade Organization agreement on services. It confirmed “that for the services included in China's Schedule of Specific Commitments, relevant regulatory authorities would be separate from, and not accountable to, any service suppliers they regulated, except for courier and railway transportation services” (World Trade Organization 2001: 65).

regulatory institution for relevant industries will work better than several independent regulators in their respective industries (Ma 2008, Wang and Zhou 2008).

Declining state capacity and inadequate regulatory capability well delineate the current predicaments that are faced by all Chinese regulatory agencies. Although it is very difficult to assess the weight that each of these structural factors carries individually, we can easily observe how they influence state regulation collectively in both the industries with an independent regulator and those without one. Scholars offer ample empirical evidence to elucidate regulatory failure, but, unfortunately, our question remains. While we expect the new regulators (those that exist in a better form of an autonomous government institution) to bring about effective state regulation and improve market operation, they are circumscribed by common constraints. The answer to the question of what makes the IRAs fail to work is still ambiguous. Likewise, a puzzling and not-yet-solved question is why the Chinese government has not been able to design and authorize the autonomous regulators to function well since their inception.

Model of Independent Regulatory Agency Revisited

While one cannot discount the preceding explanations, the current reform stagnation suggests that neither the interest group model nor the state capacity and regulatory capability approach is sufficient to elucidate the regulatory paradox in China's electricity industry. In order to exemplify the failure of IRAs, I develop three propositions that help clarify the complicated mechanism in the regulatory reform of the Chinese industrial sector. First, I suggest that the notion of agency independence is an ambiguous conception that requires further elaboration. People tend to use the term "regulatory independence" indiscriminately to refer to both the existence of an institutionally autonomous government organization (what I shall call *regulatory independence in form*, RIF) and the extent of jurisdiction (what I shall call *regulatory independence in practice*, RIP) – as if the two were naturally associated.²⁷ RIF refers to the organizational autonomy of the regulatory agencies, and RIP indicates the authorities that are necessary for a regulatory agency to monitor a certain industry.²⁸ Second, an IRA requires both RIF and RIP to avoid political and business pressure and to make state regulation work. To a lesser extent, an agency having greater RIP may develop into a functioning regulatory apparatus despite being placed under the direct control of ministers. An institution that merely obtains RIF proves to be the poorest form of regulation and has a higher possibility of regulatory capture.²⁹

²⁷ See Cukierman et al (1992), Gilardi (2002), and Gilardi (2005a).

²⁸ RIP can be distinguished between *de jure* autonomy and *de facto* autonomy. This point will be further elaborated upon in the next chapter.

²⁹ Of course, it would still be better than an agency without both RIF and RIP. But the latter is merely a theoretical type which does not empirically exist, or it is not regarded as a state regulator.

Third, I argue that in the process of establishing an IRA in China's unique economic regime, the state actually exposes regulation to more interference from other government institutions and therefore creates room for the regulated firms to be exploited. The continued existence of a strong state sector in China has presented a significant challenge to the regulatory state model that has prevailed with the spread of privatization since the 1980s. Therefore, a new IRA is destined to fail because it is captured by the procedure and can, at most, attain RIF. The IRAs the Chinese government created are best described as the IRAs with RIF. The IRA provides a prototype for attaining better monitoring, which has to date generally been assumed rather than empirically substantiated in China. I contend that as the prevailing regulatory arrangement based on Western experiences, the IRA is proffered as an ideal which China is advised to follow. But, unfortunately, it is not a best practice in the real situation because of insufficient consideration of its applicability.

V. Organization of Dissertation

Chapter 2 further develops the theoretical framework of regulatory independence and discusses the creation of IRAs at length. This chapter elaborates on two types of regulatory independence, RIF and RIP, and distinguishes four patterns of IRAs. The discussion then segues into a more practical side, investigating the problems that the state encounters in establishing IRAs in transition economies. I construct an analytical model, embedded regulation dynamics, which consists of two manifestations: diffusion of regulatory authority and involvement of the regulated. The illustration of the political logic of regulatory development and the examination of current regulatory bodies across industries demonstrate the dynamics of industrial restructuring and reflect different levels of regulatory development in China.

Chapters 3—5 illuminate the regulatory development in a representative case: the electricity industry. As the only industry that has an IRA, the experience of the power industry exhibits how a post-socialist country restructures the state-business relationship by transforming its role from controller to separate owner and regulator while liberalizing the industry. While the SERC is regarded as a model regulatory agency for other industries, ineffective regulation and regulatory capture expose the reality behind the myth of the IRA.

Chapter 3 traces the evolution of the regulatory system in the power sector. It reviews the regulatory mechanisms in different time periods with a focus on two perspectives: the political struggles within the central government and the frequent transfer of supervisory authorities between the central government and local governments. The complex interaction among organizations in the executive branch of government has left institutional legacies, which have

significant impacts on the ensuing creation of IRA and current regulatory system.

Chapter 4 investigates the causes of the current regulatory predicament. By carefully examining the case of the SERC, I show that regulatory failure is an unanticipated but inevitable consequence of bureaucratic struggles. The SERC suffers from insufficient regulatory power, and its distinguished feature of institutional autonomy has ironically restricted its operation. Moreover, local governments further exacerbate the current situation by colluding with the industries to evade regulation in order to promote economic growth and gain revenues. Transitioning political configuration has resulted in a fragmented regulatory system.

Chapter 5 focuses on firm behavior that epitomizes business involvements. The restructuring of the power industry has successfully broken the monopoly but led to an oligopolistic market that is dominated by the SOEs and has little room for private investment. The colossal state-owned power groups exploit their special ties with the state to influence the policy-making and regulatory process. The difficulty that prevents the SERC from cultivating the power market, enforcing the rules, and ensuring fair competition is not legislative pressure but inadequate practical regulatory independence. The firms adopt a different way of lobbying other government institutions, which have partial regulatory power, for their interests. Consequently, the SERC is captured indirectly by the industry through the governmental administrative procedures.

Chapter 6 compares the regulatory situation in the civil aviation and telecommunications industries and demonstrates that their regulatory agencies, which are not institutionally independent, are able to function well because they obtain more discretion. In these two industries, the state regulators are not institutionally independent, but they achieve a higher level of regulatory effectiveness and provide a robust market. I present a nuanced analysis on how these two regulatory agencies have gradually attained practical regulatory independence without organizational autonomy.

Chapter 7 revisits the major arguments in light of evidence and concludes the lessons for the study of regulation and Chinese political economy. All the following chapters are unified by a common desire to flesh out the complexities of industrial reform and regulatory development in transition economies. In creating functioning IRAs, there have been a large number of policy solutions put forward, but few have worked. This dissertation attempts to explain why. In the most general sense, this is a research project not about how to solve regulatory paradox but rather about how to understand regulatory development in China.

CHAPTER TWO

WHY THE INDEPENDENT REGULATORY AGENCY GETS CAPTURED: A THEORETICAL FRAMEWORK

In the first chapter, we present the regulatory predicaments of the electricity industry, which reflect the distinct characteristics of reform stagnation in the Chinese industrial sector. In probing the underlying causes and dynamics of the electricity industry's quandary, we now turn to the discussion of independent regulatory agencies (IRAs) and regulatory independence. By applying the theoretical insights from the existing literature, we can better understand the political and economic logic of regulatory development and the institutional configuration through which the IRAs are created but unable to resist political interference.

I. Independent Regulatory Agencies and Regulatory Independence

The conventional wisdom is that it is necessary for a regulatory body to obtain agency autonomy in order to wield its authority without political and business intervention. In the United States (U.S.), state regulation through independent regulatory agencies (IRAs) is regarded as the most viable tool of governance. This feature has been identified as a major component in subsequent regulatory reform in other countries, especially in Western Europe. IRAs are non-majoritarian institutions that are defined as “those governmental entities that (a) possess and exercise some grant of specialised public authority, separate from that of other institutions, but (b) are neither directly elected by the people, nor directly managed by elected officials” (Thatcher and Sweet 2002, 2). In order to provide credibility and efficiency to the political process, IRAs acquire the technical expertise and cumulate competencies of execution while operating at arm's length from political control. They have a long history in the U.S. but appeared relatively recently in Western Europe, where the number of IRAs has sharply increased since the mid-1980s.³⁰

As a prevailing model in the expansion of regulation, the spread of IRAs in Western Europe has been driven by three mechanisms (Levi-Faur 2005, 25-27). First, the *top-down approach* describes the adoption of IRAs as a response of policy makers to both the formal and informal exogenous pressures exerted by international organizations that have contributed greatly to the diffusion of IRAs. This institutional isomorphism is coercive and the pressures are demonstrated in various forms such as force, persuasion, or invitation (DiMaggio and Powell 1983, 150).

³⁰ Generally, systematic work on the diffusion of IRAs across developing countries is scarce, even though there are some in Latin American studies (Levi-Faur 2003, Jordana and Levi-Faur 2005, 2006).

Second, the *bottom-up approach* purports that the countries may have coped with similar problems at the same time and have reacted in similar ways. For most countries, establishing the IRAs are an appropriate solution to two major problems, the credibility of regulatory commitments and political uncertainty (Gilardi 2005, 87-88). Third, the *horizontal approach* suggests that policy makers will make interdependent decisions by observing and learning from each other. Adoption of IRAs in one sector increases the probability of IRAs being implemented in other sectors in the same countries and also in the same sector in other countries through a process of “emulation” (Gilardi 2005, 90). No matter what the mechanism of adoption, once the ideas were introduced into the political process, the creation of IRAs should respond to multiple conditions, such as functional logic and national features (Thatcher 2002).

A firm belief in the creation and diffusion of IRAs is that independence is important for sheltering regulatory functions from political and business controls. However, we must “not overstate in theory the degree of independence that exists in practice” (Majone 1999, 9) because the IRAs are not entirely free from political accountability, which exists in various forms such as legislative supervision and public hearings.³¹ Finding the logical balance point between agency autonomy and political accountability has imposed a great challenge to representative democracies, who seek to resolve such problems by strengthening the accountability structure rather than limiting the independence of regulators (Majone 1999, Christensen and Lægreid 2007). Moreover, institutional autonomy is a necessary but not sufficient condition for agency performance. Without being granted the full scope of powers of jurisdiction, an IRA remains exposed to regulatory capture. This is especially true in transition economies. While the establishment of IRAs shows the state’s determination to liberalize the economy and create a market for free competition, these new IRAs run a high risk of being trapped in political struggles because of compromised design. Hence, IRAs are unable to function properly and, at best, sustain a merely nominal independence.

Independence is subject to various interpretations. In this dissertation, I use it interchangeably with *autonomy*, and distinguish between two types of independence: *regulatory independence in form* (RIF) and *regulatory independence in practice* (RIP).³²

RIF refers to the organizational structure of a regulatory agency which is completely separate from the ministries and acquires a certain level of financial autonomy.³³ The attributes of RIF include the structural conditions such as personnel appointments, security of tenure, budget and

³¹ The Office of Communications of the United Kingdom is an extreme case in that it is a fully autonomous regulatory body operating under the Communications Act 2003. See <http://www.ofcom.org.uk/what-is-ofcom/>.

³² Maggetti (2007) has a similar discussion and distinguishes between formal independence and de facto independence.

³³ A relevant concept is organizational autonomy of public institutions. See Verhoest *et al* (2004).

other resources, and training for fostering the requisite expertise. The regulatory institutions with RIF can be organized on three main bases: *industry-specific*, in which there is an IRA for a single industry such as the SERC in China and Brazilian Electricity Regulatory Agency in Brazil; *sector-wide*, in which there is an IRA for a more broadly defined sector such as the Federal Energy Regulatory Commission in the United States and the Energy Regulatory Commission in France; and *multi-sector*, in which there is an IRA for all or most relevant industries on certain issues such as the Competition Commission in the United Kingdom and Fair Trade Commission in Japan (Smith 1997b). Contrary to popular belief, RIF is not a guarantee for IRAs to be free from political pressure and business lobbying. IRAs are still vulnerable to great policy influence if material resources are insufficient. I contend that the isolation of an agency does not necessarily bring about successful enforcement. Thus, my first primary hypothesis is as follows:

If regulatory independence is in form only, the regulatory agencies should function less effectively.

Following this line of thinking, a contradiction may arise over why IRAs in the American regulatory state are able to function well. The key lies in RIP. RIP is about the delegation of authority and is defined as a regulatory agency's competency to act, decide, and self control (Braun 2002). In the U.S., mature legal culture and developed legalism have granted a regulatory agency complete discretion to perform its tasks. RIP is a synthesis of two components: *de jure* autonomy (scope of jurisdiction that the agency obtains) and *de facto* autonomy (extent of discretion that the agency actually works). One caveat is that *de jure* autonomy is not a constantly sensitive indicator of *de facto* autonomy, and they are not always in concordance (Sezen 2007, 320). My discussion centers on *de jure* autonomy and emphasizes how important it is as a qualification while installing IRAs - only if an IRA has been well delegated can we move a step further to elaborate its performance. The state regulators may not be organizationally independent, but they still are able to fulfill tasks well so long as they have RIP.³⁴ With RIP, IRAs have a higher capacity to resist regulatory capture and accomplish their responsibilities. I then propose a hypothesis:

If regulatory independence is in practice, the regulatory agencies should function more effectively.

³⁴ For example, in the U.S., the Federal Aviation Administration is a part of the Department of Transportation, and the Food and Drug Administration is a part of the Department of Health & Human Services. They are able to enforce regulations independently without institutional autonomy.

In addition, one noteworthy issue is that in transition economies, regulatory development should be incorporated into the macroeconomic reform program and be carried out earlier than or at least at the same time as reform implementation. If it comes late, the state will face strong resistance from a constituency of winners created by the reform.³⁵ As a prescription to avoid this potential problem, the regulatory mechanism should be established before or concurrently with the reform implementation, not afterwards.

Accordingly, I categorize the IRAs into four groups in order to identify various degrees of regulatory capacity and to help us distinguish between different patterns (see Table 2-1). RIF and RIP are mutually supporting, and drawing them together makes an IRA independent in the real sense. The *ideal IRAs* are able to keep a distance from elected politicians, other government entities, and regulated firms and possess complete delegation.³⁶ Most regulatory agencies are not institutionally autonomous bodies but instead parts of the ministries. In spite of being subordinated to a higher authority and exposed to possible political intervention, the *functional IRAs* are granted RIP and develop into functioning regulatory apparatuses. The *nominal IRAs* that merely obtain organizational autonomy have a higher possibility of regulatory capture. Limited purview over monitoring the industry has caused the IRAs to fail in managing regulatory actions. The regulatory authority is either dispersed among various administrative bodies or concentrated on a higher level government body. Of course, the nominal IRAs shall be better than *defunct IRAs*, which have neither RIF nor RIP. But the latter is just a theoretical model that neither empirically presents as nor is regarded as a regulatory agency.

Table 2-1: A Typology of Independent Regulatory Agencies

		Regulatory Independence in Form	
		Y	N
Regulatory Independence in Practice	Y	Ideal IRA	Functional IRA
	N	Nominal IRA	Defunct IRA

II. Creation of IRAs and Emergence of Embedded Regulation

In transition economies, the construction of a modern regulatory system is fundamental to

³⁵ For a more comprehensive argument on the new vested interests created by the reform, see Hellman (1998).

³⁶ The content of ‘necessary authority’ varies by industries because of their different natures.

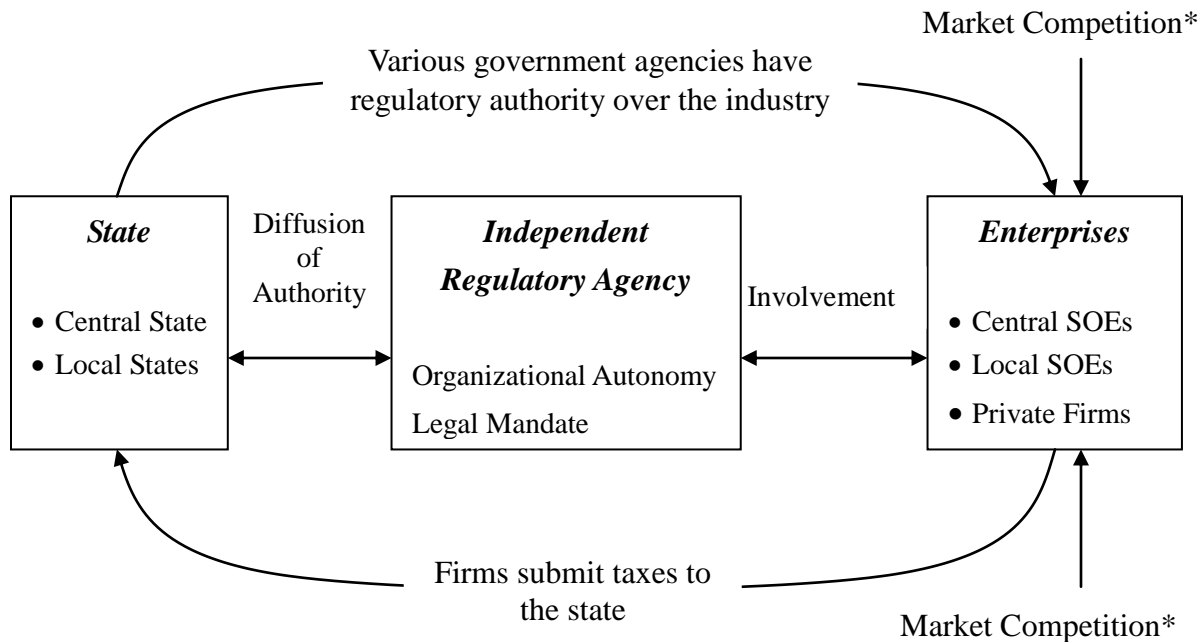
ensuring market operation and facilitating competition. When shifting from the traditional ministerial model to an IRA arrangement, the states have several options: 1) to enhance existing regulatory bodies and evolve them into IRAs; 2) to create a dedicated regulatory unit in a ministry and then increase its autonomy and capacity; or 3) to establish an agency with both the attributes of an IRA and a ministry. The last design can benefit the technical quality of the regulatory process, but the ministries should withdraw once the agency is developed (Smith 1997a). These approaches, however, entail a common weakness in that it takes a longer time and a higher cost to have true IRAs.

By learning from other countries' experiences and through the assistance of international organizations, the states actually have the option of constituting IRAs directly. Nonetheless, the differing political configurations and economic systems cast doubt on the applicability of IRA model. The departmental interests of various central bureaucrats and substantial state ownership have a decisive impact on agency autonomy. Moreover, with limited regulatory experience and capacity, the states run a higher risk of creating new IRAs and face potential challenges from within to delegate broad discretionary power to innovative but untested agencies. During the process, both political and business interference significantly weakens new IRAs. The government institutions strive to retain their power and actively resist the devolution of their authority over an industry to the new agency. Such political struggles then create room for the regulated firms to manipulate the regulatory process.

In fact, in transition economies, the states expose the IRAs to more intervention from vested interests both within and outside the government. A new IRA is destined to fail in that its formulation, adoption, and implementation would be captured by the administrative procedures. Its RIF is relatively easier to achieve, but its RIP is uncertain and relies on interaction with other government entities (intra-government) and the regulated firms (state-business). Accordingly, the new IRA is more likely to be nominal than ideal. It readily decays into a defunct IRA once RIF deteriorates. The creation of new non-independent regulatory agencies is expected to encounter a similar problem with the reallocation of authority. A feasible alternative is to empower existing regulatory bodies that are not institutionally independent, such as departments within the ministries. Being parts of higher authorities, they inevitably must abide by a certain degree of direct political control. This subordinate relationship, however, is not all bad and in fact has a positive effect on shielding the regulatory agencies from excessive interference. In addition, the continuing existence of regulatory agencies helps to consolidate their governing authority and credibility and to foster expertise and professionalism. As the regulatory system develops, they are able to evolve into functional IRAs or even ideal IRAs (once their organizational autonomy is augmented). Hence, my first secondary hypothesis is:

In a transition economy, the establishment of new IRAs is less likely to improve the effectiveness of state regulation than the enhancement of existing regulatory bodies, all other things being equal.

Figure 2-1: The Embedded Regulation Dynamics



***: The degree of market competition varies across industries.

A new IRA suffers from a particular form of regulatory failure, and “embedded regulation dynamics” provides an alternative analytical approach to understand this specific problem (see Figure 2-1). It remains a very limited regulator because it is embedded in the governmental structure and immersed in a dense network that binds it to the regulated firms. Although possessing institutional autonomy enables it to not be subordinate to elected politicians and to maintain a distance from other ministries, the new agency is besieged by administrative divisions and business groups. *Embedded regulation* decreases the RIP of IRAs and therefore endangers the efficacy of a regulatory system. It has two manifestations through which we can identify the extent to which an IRA is entangled in the structure of the government and state-business nexus: the diffusion of regulatory authority and the involvement of interest groups. Regarding the diffusion of regulatory authority, it is based on the idea that an IRA has not been awarded complete RIP while supervising the industry. When setting up a new IRA, the state is unable to centralize regulatory authority because the relevant government departments would resist

conceding and transferring their resources. Consequently, sharing regulatory authority with other parallel government institutions creates a gray zone where the regulatory responsibilities are not clear. I then propose a hypothesis:

The new IRAs are more likely to possess fragmented authority than existing regulators.

With respect to the involvement of interest groups, it is important to identify the channels that regulated firms could exploit to influence the political process (both policy-making and regulatory). In Western countries with a well-established legislative structure, firms will lobby legislators to support specific policies. However, in transition economies where the legislature is still immature and elected politicians are not as influential as their counterparts in Western countries, similar strategies are not plausible. The companies turn to bureaucratic venues as a means of affecting policy decisions and regulatory enforcement. These channels of accessibility available to the ‘potential’ regulated enterprises may put up barriers to a new IRA still in the nascent stages. I then introduce another hypothesis:

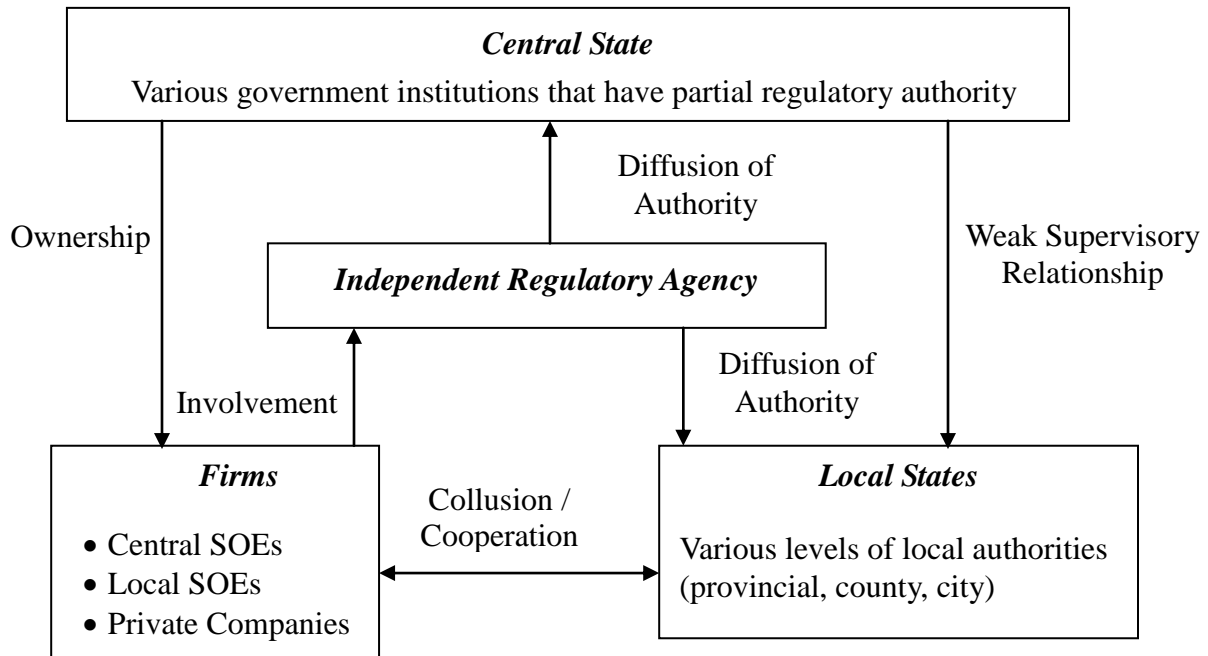
The new IRAs interact with the regulated firms with less leverage than existing regulators.

In short, as a new government body, an IRA encounters two conditions that impair its RIP and then its operation. The diffusion of regulatory authority results in complicated coordination with other government institutions and the approachable conduits of the regulatees contribute to an unruly business involvement. Accordingly, the new IRA fails to perform as expected by the state. Against the conventional wisdom, it is more vulnerable to regulatory capture when compared to present non-independent regulatory agencies.

The Chinese government has encountered such dilemmas while developing the regulatory systems. It has aimed to create functioning IRAs but failed to transfer/delegate essential authorities to them. As concluded from the experiences of the most prominent Western IRAs, the *ideal IRA* provides an optimal model leading to effective regulation; it has, however, merely been proposed, rather than empirically realized in China. That is, although the Chinese government gained full knowledge of the qualifications for establishing an ideal IRA, it failed to put it into practice when taking actual conditions into account. Hence, China’s present IRAs represent not policy innovation but an eclectic balance among competing interests. Only by applying the ideas of embedded regulation within the Chinese context can we explore regulatory

variation in the industrial sector and clarify the logic behind the failure in building up ideal IRAs (see Figure 2-2). In the next section, I investigate the political logic of regulatory development and examine the regulatory institutions across industries in China.

Figure 2-2: The Embedded Regulation Dynamics in the Chinese Context



III. Regulation Development in the Chinese Industrial Sector

From China’s booming economy in the past three decades, people have observed a fast-growing economic power and were stunned by how capable the state has been in managing the reform process. To much praise, China has achieved a great success in their economic reform because of their adoption of a gradualist approach, compared to their counterparts in Eastern Europe. Nonetheless, what have been overlooked are the increasing reform paradoxes behind the onstage achievement. The transition from a centrally planned economy to a market economy has occurred with insufficient preparation and without taking all potential impacts and outcomes into account. The central government has found that it becomes more and more difficult to deepen the reform in some aspects as time passes. The key lies exactly in the reform strategies themselves. The pragmatic philosophy of “groping for stones to cross the river” vividly delineates the characteristic of a gradualist reform process, but its fundamental logic is to solve the relatively easy problems first and postpone the hard-core issues. It also exposes the flaws in China’s

blueprint for reform: the long-term vision is ambiguous and further progress depends on previous implementation. Moreover, frequent government reorganizations, which aim to streamline the enormous political bureaucracy and improve efficiency and efficacy, have resulted in political struggles and the transfer of authority among the government institutes.³⁷ When the state put economic growth and social stability as top priorities, it proceeded at the expense of putting aside other imperative tasks such as legal and regulatory reform. The delay in these particular reforms extensively stymies further economic development.

Following the progress of the reform, we have also witnessed the shifting structural composition of the industrial sector, a shrinking state sector, and an expanding private sector. In retrospect, the reform era has been distinguished into different phases by a series of government actions and policies taken to relax state control on various aspects of the national economy. An existing, rigidly planned economic system has gradually been actively eroded and replaced by a market system. At the earliest stages, liberalization strategies were adopted to improve economic efficiency and public accountability. In the 1980s, by introducing fiscal decentralization and innovative production modes, the booming “township and village enterprises” contributed greatly to rapid economic development (Oi 1992). The industrial sector was imbued with vigor and exhibited great productive potential. As the market and competition further developed, the phenomenon of township and village enterprises collapsed in the mid-1990s due to inadequately assured property rights, inactive management, and unclear responsibilities (Kung and Lin 2007).³⁸ It has not, however, jeopardized the flourishing private/non-state sector and has actually provided an opportunity to clarify property rights. Accompanied by the establishment of the market and free competition, private ownership was considered to be a panacea for curing China’s ailing economy, and state ownership was viewed as the major reason that stymied the economy’s development.

Meanwhile, the central government centered upon offering the SOEs more autonomy over company operations and profits. It then moved on to clarify the property rights and harden the economic constraints of the state firms. The major policy of “grasp the big corporations; get rid of the small ones” (*zhuada fangxiao*) was promulgated in 1997 to reshuffle the state sector. The state kept the large SOEs public-owned and reorganized them into business conglomerates in the forms of limited liability companies or joint stock companies in accordance with the 1994 Company Law, especially those in the monopoly and strategic industries regarded as the

³⁷ To date, the Chinese state has undertaken six rounds of administrative reform in 1982, 1988, 1993, 1998, 2003, and 2008 respectively.

³⁸ In reality, most of the township and village enterprises were not collective-owned but “completely or manifestly private” (Huang 2008, xiv).

“commanding heights” of the national economy.³⁹ For the small SOEs, the state either privatized or transferred them to the local governments in order to unload a heavy financial burden (Zhang 2006, 427-429). While the reform has been oriented towards privatization, it has also sparked debate and extended discussion to policy burdens and economic constraints.⁴⁰

The state has gradually retreated from many aspects of the economy and the size of the state sector has shrunk considerably.⁴¹ The number of SOEs radically decreased from 6,599 in 1997 to 2,208 in 2000, then to 189 in 2003 when the State-owned Assets Supervision and Administration Commission (SASAC) was established. As of January 2010, there are 129 central SOEs (*zhongyang qiye*) owned by the SASAC, and the number will be further reduced to around 80 to 100.⁴² In the remaining state sector, the central government has implemented a policy of corporatization instead of privatization and adopted modern enterprise systems that led to an obvious improvement in corporate performance. The original style of state control over the industrial sector has correspondingly lessened and transformed to a regulation-centric framework. While the logic of reform appears to be quite similar across industries, their differing stages of implementation have caused the state to distinguish its role along a continuum of market development. Hence, the central government adopts different attitudes towards the respective industries.

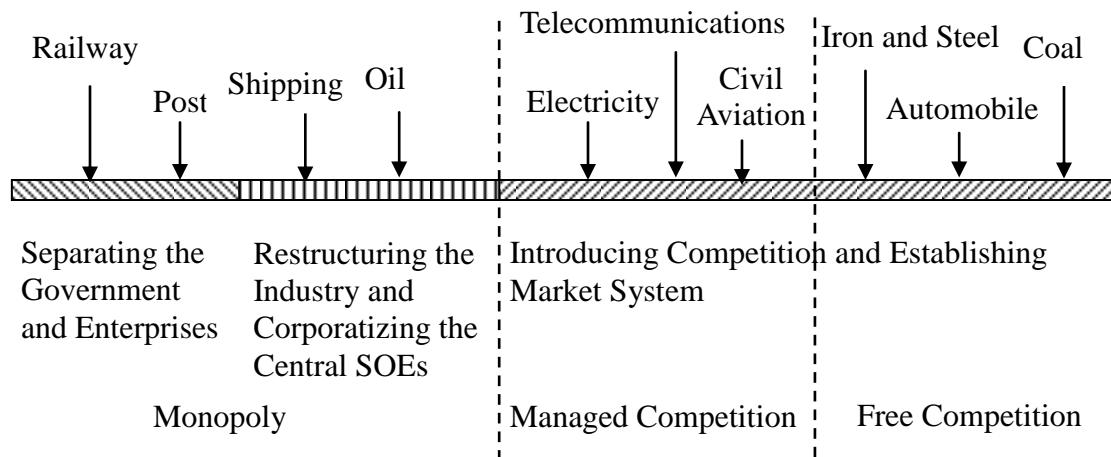
³⁹ The “commanding heights industries” are the so-called *jingji mingmai* (literally “economic lifeline”) industries: military engineering, electricity, oil and petrochemical, coal, shipping, civil aviation, and telecommunications.

⁴⁰ See property rights, Zhu and Lin (2001), Garnaut, Song, and Yao (2006); policy burden, Lin, Cai, and Li (1998); budget constraints, Steinfeld (1998).

⁴¹ The state sector has been growing again since 2005 and its expansion has posed a major threat to the development of the private sector. “Guanzhu zai guoyouhua (Paying Attention to “Re-nationalization”),” *Zhongguo Xinwen Zhoukan (China News Weekly)* 11 (March 27, 2006).

⁴² The SASAC is a major government agency that performs the duties as the owner and investor of state assets, and pushes forward the SOE reform. It integrates the responsibilities from the former State Economic Trade Commission, Central Work Committee for Large Enterprises of Communist Party of China, and certain authorities of the Ministry of Finance and the Ministry of Labor and Social Securities. Although the SASAC has regulatory power over the SOEs, the SOEs are also regulated by the regulatory agency in each individual industry, such as the State Electricity Regulatory Commission in the electricity industry and the Ministry of Industry and Information Technology in the telecommunications industry. Moreover, in some industries, the National Development and Reform Commission and the Ministry of Finance share the regulatory authority as well. A list of the central SOEs can be found at <http://www.sasac.gov.cn/n1180/n1226/n2425/index.html>.

Figure 2-3: Reform Progress and Market Development in Various Industries



According to the degree of market competition, I categorize the industries into three types (see Figure 2-3). Below, I introduce these three categories and summarize the situations of the relevant industries with a focus on the role of the state and the different directions these industries take in each group. At one extreme, it is ‘*monopoly*.’ In certain industries, such as railway, post, shipping, and oil and petrochemical, the reform has lagged behind and neither liberalization nor privatization has been enforced. Although some of them have successfully implemented the first step of the reform project -- namely, splitting business from government (*zhengqi fenkai*), reshuffling and corporatizing the major SOEs -- none have brought about any substantive progress in developing a regulatory system. The industries are saturated and oligopolized by a few colossal SOEs which bear high policy burdens and compete with each other in an underdeveloped market. State control remains tight and the supervisory authorities are the respective ministries or comprehensive commissions, which impose extensive and rigorous monitoring over the industries.⁴³ In this category, the railway industry is an extreme case and has not yet undergone any meaningful reform. The Ministry of Railways plays an integrated role of owner, manager, and regulator. The postal service eventually split its business functions from the State Post Bureau in January 2007. The creation of China Post marks a successful beginning and more reform steps are expected. The shipping industry is characterized by a good division of labor among three central SOEs: China Ocean Shipping Company focuses on ocean transportation, China Shipping Company is mainly in charge of coastal traffic, and China Changjiang National Shipping Corporation provides services in inland river shipping. The Ministry of Transport has full authority over the industry. The situation in the oil and

⁴³ The comprehensive commissions are the government bodies responsible for overseeing the economy at large, such as the NDRC and SASAC. They are a legacy of central planning and focus on macroeconomic management.

petrochemical industry is somewhat different. After the State Bureau of Petroleum and Chemical Industry was abolished in 2001, there has been no specific government institution in charge of the industry, and the managerial authorities were dispersed to the National Development and Reform Commission (NDRC), Ministry of Finance (MOF), Ministry of Commerce (MOC), and SASAC. We find that in these industries, the regulatory framework has changed very little during the economic transition and the separate regulatory agencies have not yet been created.

On the other end is '*free competition*.' The coal, automobile, and iron and steel industries are the cases that fit in this category. After implementing a series of reform projects, these industries have marched the farthest during the economic reform and carried out the highest level of liberalization. They enjoy an established market and boost genuine competition among the different kinds of companies. Free price mechanisms determine the prices by the interaction between demand and supply. There are several central SOEs in each industry, but they are definitely not dominant actors. For instance, although China National Coal Group Corporation and Shenhua Group Corporation Limited are leading companies in the coal industry, they are competing with thousands of middle- and small-scale coal mining companies and their total market share is less than 20 per cent. In the automobile industry, there are two central SOEs, China FAW Group Corporation and the Dongfeng Motor Corporation, and their market shares are only 16.3 per cent and 14.1 per cent respectively.⁴⁴ They are facing challenges from various types of competitors, including the local SOEs such as Shanghai Automotive Industry Corporation, private firms such as Geely Automobile and Great Wall Motors, and foreign companies such as Toyota and Ford. Generally, there are no industry-specific regulatory agencies in this group. The industries are monitored by multi-sector IRAs with specific concerns over either economic or social regulation. The regulatory functions are highlighted in either supervising business transactions and ensuring a functioning market or preventing safety accidents and safeguarding social welfare. The major IRAs are the State Administration for Industry and Commerce, which is in charge of market supervision and related law enforcement; the State Administration of Work Safety which focuses on safety-related issues; and the Ministry of Environmental Protection, which is responsible for pollution control and enforcement of environmental policies.

In between, there stands the type '*managed competition*.' Three industries - electricity, telecommunications, and civil aviation - are in this group, and they share similar characteristics as both monopoly and strategic industries. Each of them has experienced a critical stage of

⁴⁴ "Woguo sanda qiche jituan qunian shichang fen'e yousuo tisheng (The Market Share of the Big Three Automakers Had Expanded Last Year)," *Xinhua Net*, January 28, 2009, http://big5.xinhuanet.com/gate/big5/news.xinhuanet.com/fortune/2009-01/28/content_10727654.htm, accessed March 31, 2009.

reform and private investors and/or competition has been introduced. Nonetheless, two inferior conditions stymie state regulation in these industries: an immature market and the central SOEs' status as dominant actors. The central SOEs play a distinctive role because of the primacy of public ownership and their quasi-governmental status. They benefit from the exploitation of their ties with the state, the gaps created by the dynamic interaction between state supervision and party intervention, and distorted information flowing out from the firm. While the industries were liberalized and the barriers to market entry were lifted, the private investors, both domestic and foreign, realized that it would remain very difficult to compete with their counterparts in the state sector. Accordingly, some of them retreated in the end while others are still struggling. In reality, the existence of state ownership has set regulatory development back rather than moving it forward. The state regulators have the main duty of supervising corporate behavior and not the whole industry, let alone a not-yet-existing marketplace.

Regulatory development among the industries in this group exhibits four distinctive features. First, it elucidates various ways of promoting market development in tandem with preserving state ownership in China's socialist market economy. Second, it presents a model for other industries to balance between breaking up monopolies and maintaining state dominance in the commanding heights industries by creating several giant state business conglomerates. Third, it demonstrates the central state's determination in transforming its own role and creating IRAs. Fourth, the variation among the industries illustrates how an IRA has ironically led to an inferior outcome that impedes reform implementation and detracts from market development.

One caveat is that the cross-sectoral variation might have resulted from the different natures of the industries.⁴⁵ However, in a transition economy, how a regulator agency works depends on the extent to which the state is able to transform its role and adapt itself to changing circumstances. Hence, the development path of a modern regulatory system, not the industries' differing natures, is a deciding factor. In industrialized countries, the regulatory mechanisms may vary in their response to the different industries; the state addresses different concerns in terms of respective characteristics only within the precondition of an ordered market.

IV. Regulatory Development and the Creation of IRAs in the Chinese Industrial Reform

Regulatory development and the creation of IRAs were originally not part of the reform schedule but instead emerged later as responses to institutional necessities. Hence, the process of

⁴⁵ For example, a thesis is that the number of actors plays a deciding role in state regulation – the more companies an industry has, the more difficult it is for the regulatory agency to manage. Nonetheless, this is not empirically substantiated and is based on fallacy. The real situation goes against the thesis – if the state regulator faces few powerful companies, it should be more difficult for it to enforce regulations.

institutionalizing and legitimizing IRAs is ongoing in China. Debates on the limits of autonomy for the functioning IRAs, the relationship with other government bodies, the political responsibility of IRAs' actions, and the mechanisms for enhancing their accountability have begun to heat up among scholars and state officials. Policies to determine the main lines of institutionalization and consent have not yet fully matured. Diverging from the principle of settling all the issues before IRAs are established, the Chinese government went in the opposite direction to form IRAs first and then gradually complete their functions. In doing so the state has exposed IRAs to potential capture by governmental administrative procedures.

IRAs first appeared in the financial sector. The China Securities Regulatory Commission was formed in 1992 as a response to rising chaos in the unruly stock market in Shenzhen. In order to better manage the fast-growing financial sector and ensure trading platforms, two more IRAs, the China Insurance Regulatory Commission and China Banking Regulatory Commission, were successively created in 1998 and 2003. Although the formation of these IRAs were not in advance of or even concurrent with reform implementation, the relevant laws passed or amended by the National People's Congress have provided strong and necessary backing to IRAs.⁴⁶ Therefore, these three IRAs can be viewed as, or on the way toward, ideal IRAs that have both RIF and RIP. Their organizational autonomy and clear legal mandate enable effective enforcement and prevent interference from other government entities and business interests. A noteworthy feature of IRAs in the financial sector is that there is a clear division of labor between them and two other critical supervisory ministries, the MOF and People's Bank of China.

The administrative streamlining spearheaded by former Premier Zhu Rongji in 1998 had eliminated many of the ministries that managed industries and further empowered comprehensive and macroeconomic-oriented commissions (Lan 1999).⁴⁷ This reform initiative was a monumental effort in changing China's government-industry relationship and led to the establishment of new regulatory systems. In the industrial sector, the presence of different paths toward regulatory development has demonstrated that the central government has contemplated the heterogeneous conditions and diverse stages of reform and realized that "one model does not fit all." Therefore, various types of regulatory agencies have sprung up. There are many elements that we can observe to distinguish these regulatory institutions, such as type of regulation, scope of responsibility, and type of IRAs. Because of these numerous characteristics, it is difficult to

⁴⁶ These laws include the Securities Law adopted in 1998 and revised in 2005, the Insurance Law promulgated in 1995 and amended in 2002, the Commercial Banking Law and the People's Bank of China Law both adopted in 1995 and amended in 2003, and the Law on Banking Regulation and Supervision adopted in 2003 and amended in 2006.

⁴⁷ There are 14 line ministries that were abolished.

categorize them into groups with similar conditions. Nevertheless, the guidelines for industrial reform deliver a clear message about regulatory development: the political and regulatory functions will be eventually separated in order to ensure fair competition between the SOEs and private firms. Hence, we may expect two regulatory trends. First, more industry-specific IRAs will be created and second, the multi-sector IRAs will expand their coverage to include more industries. In fact, some existing regulatory institutions have undergone several rounds of reorganization so that they have been able to further consolidate regulatory authorities and gain greater autonomy.

To date, not including traditional ministerial entities such as the Ministry of Railways and comprehensive commissions such as the NDRC and SASAC, there are seven major regulatory bodies in the industrial sector (see Table 2-2). Three of them are industry-specific IRAs and others are multi-sector IRAs. The State Administration of Coal Mine Safety (SACMS) is in a somewhat different situation. It had been paired with the State Administration of Work Safety (SAWS) between 2001 and 2005, but then became a state bureau supervised by the SAWS while the central government upgraded the SAWS to the ministry level. Therefore, the SACMS is now a part of a multi-sector IRA and is responsible for safety issues only in the coal industry. The central government made this special arrangement, an industry-specific IRA within a multi-sector IRA, in order to show its determination to improve safety and prevent fatal accidents in the coal mines nationwide.⁴⁸ Generally speaking, the industries that have successfully established an orderly market are regulated by the multi-sector IRAs, including the SAIC in economic regulation and SAWS and MEP in social regulation, and some other ministries which have partial regulatory authority over certain issues, such as the MOC on domestic and foreign trade and the Ministry of Land and Resources on land use.

In order to illuminate the regulatory paradoxes resulting from the ongoing industrial reform, our discussion focuses on the monopoly industries. We discuss those monopoly industries in which the state has achieved a certain amount of reform progress while maintaining state dominance as a consideration of economic security. By examining three industries - electricity, telecommunications, and civil aviation - in which market development is characterized as 'managed competition,' we clarify the predicaments in creating an ideal IRA, investigate the structural constraints crippling state regulators, and indicate future directions for latecomers in the industrial reform. Most importantly, we illustrate the relationship between the types of IRAs and their performance.

⁴⁸ Coal mine safety is a critical issue and almost 80 per cent of the country's 16,000 mines remain illegal. The annual death toll was over 100,000 between 1995 and 2007. "Deaths in China coal mine accidents down 15% in 2008," *People's Daily Online*, January 28, 2009, <http://english.people.com.cn/90001/90776/90882/6581574.html>, accessed April 2, 2009. For more information about state regulation in China's coal industry, see Wang (2006).

Table: 2-2 Major Regulatory Agencies in Selected Industries

<i>Regulatory Agency</i>	<i>Scope of Responsibility</i>	<i>Year Established/ Reorganized</i>	<i>Type of Regulation</i>	<i>Type of IRA</i>	<i>Superior / Parent Agency</i>
State Electricity Regulatory Commission	Electric Power	2003	Economic	Nominal	State Council
Ministry of Industry and Information Technology	Telecom	2008	Economic	Functional	State Council
Civil Aviation Administration of China	Civil Aviation	2008	Economic	Functional	Ministry of Transport
State Administration of Work Safety	Work Safety	2008	Social	Ideal	State Council
State Administration of Coal Mine Safety	Coal Mines	2008	Social	Functional	State Administration of Work Safety
State Administration for Industry and Commerce	Market Operation	2008	Economic	Ideal	State Council
Ministry of Environmental Protection	Environmental Protection	2008	Social	Ideal	State Council

V. Various Paths for the Evolution of State Regulation

As the Chinese economic reform advances, the idea of state regulation has experienced a corresponding transition and the regulatory functions have been substantially redefined in response to practical needs. In some industries, the state has carried out both privatization and liberalization at once and achieved great success in improving productive efficiency. The role of the state has correspondingly shifted to that of a regulator and provided a functioning market mechanism. The electricity, telecommunications, and civil aviation industries are the representative cases that have experienced industrial restructuring and a significant shift in the role of the state. The central government was very cautious in reforming the monopoly industries

which require more sophisticated, industry-specific reform programs. Due to economies of scale and the stability of the provision of services, these industries had been controlled by the state for a long period. As the technology advances, scholars recognize that natural monopolies, such as network utilities and infrastructure, are not monolithic entities and that their vertically- integrated industrial structures are problematic (Kessides 2004). These industries consist of both competition and monopoly elements and should be unbundled both vertically and horizontally (see Figure 2-3). I then introduce the transition of the regulatory system and market development in each industry and describe the various reform trajectories in a comparative perspective.

Figure 2-4: Unbundling of Monopoly Industries

		Telecom	Electricity	Civil Aviation
	Major Regulatory Agency	MIIT	CAAC	SERC
<i>Vertically Restructuring (industrial framework)</i>	Monopoly Components	Land Lines	Airport Facilities	Transmission & Distribution
	Competitive Components	Mobile & Long Distance	Airlines	Generation
	Ownership	Public (central)	Public (central, local) and Private	Public (central & local) and Private

Horizontally Restructuring (ownership)

Civil Aviation

In the beginning of the economic reform, the Civil Aviation Administration of China (CAAC), the supervisory authority of the industry, was transferred from the Chinese Air Force to the State Council. It was a mixture of government and enterprise and has undergone several stages of reforms since then.⁴⁹ The CAAC was promoted to the ministerial level directly under the State Council in 1993 and enjoyed a higher degree of autonomy. It brought forward the floating price mechanism in 1997. The major industrial restructuring took place in 2002, and the CAAC was transformed into the sole state regulator of the Civil Aviation sector. The existing

⁴⁹ More information about the history of the Civil Aviation Administration of China, see <http://www.caac.gov.cn/H1/H4/>

nine state airlines were reorganized into three mammoth airlines and their ownership was transferred to the SASAC. Together with the separation of government and business and the concurrent establishment of 7 regional bureaus and 26 provincial regulatory offices, the CAAC has been able to clarify its role as a regulator and provoke greater competition among the airlines. The state airlines have limited access to influence the administration within an existing regulatory structure. When the Chinese government declared that it would further liberalize the aviation sector in 2005, private and foreign capital was encouraged to invest in the market.⁵⁰ The decision of the government to end its monopoly of China's airlines has brought rapid development in the industry; currently there are four major airline groups and more than 30 airlines.

Meanwhile, by implementing reform step by step, the CAAC has consolidated its authority over the whole industry and been freed from the involvement of other government entities. It is now transitioning from regulating respective firms to managing an improving, maturing market with a competitive price system and diverse ownership of airline companies. The consumers enjoy the benefits of floating prices among different airlines. The latest development is that the CAAC was absorbed by the new Ministry of Transport in the administrative reform of 2008. The impact of the most recent reorganization on the regulatory regime is not yet clear.

Telecommunications

In the telecom sector, the development of the regulatory system has undergone three stages during the reform era: the Ministry of Post and Telecommunications (MPT, 1949-1998), the Ministry of Information Industry (MII, 1998-2008), and the Ministry of Industry and Information Technology (MIIT, 2008-).⁵¹ While the MPT performed regulatory functions over both postal services and telecommunications for more than two decades, the state distinguished between these two industries and set up the MII in the 1998 administrative reform. Between 1999 and 2001, the central government implemented a series of restructuring plans to establish six central SOEs to provide different types of services. There was a clear division of labor among them: China Mobile and China Unicom were responsible for the mobile sector; China Telecom, China Netcom, and China TieTong were licensed to the land-line sector; and China Satellite Communications Corporation engaged in the satellite communications business. In 2008, the regulatory system was again transformed, and the MII was integrated into the new MIIT. The

⁵⁰ "Minhangye xiang minying ziben kaifang (The Civil Aviation Industry is Open to the Private Capital)," *Xinhua Net*, August 1, 2005, http://news.xinhuanet.com/fortune/2005-08/01/content_3293908.htm, accessed March 31, 2009.

⁵¹ "Zhongguo dianxin chongzu dashiji (A Chronology of Reorganization of the Chinese Telecommunications Industry)," *Net Ease*, http://tech.163.com/special/00092NOL/telecom_history.html#5, accessed April 3, 2009.

industry also underwent a major reshuffle to create three full-service phone companies: China Mobile, China Telecom and China Unicom.

During several rounds of organization, all reform projects were carefully designed and carried out under the lead ministries, from the MPT to MIIT. So, the regulatory power has not been disrupted and dispersed but further centralized. The central state has restructured the industry at a manageable pace and cautiously established various enterprises. In spite of the lack of a private service provider, a certain degree of competition is invoked among the state firms to form a quasi-market system. The consumers therefore enjoy floating prices and various service package options. No matter what form it takes, the major regulatory authority has always played the leading role in the whole reform process and thus has been able to supervise the SOEs.

Electricity

Since the 1950s, China's power industry has gone through various stages in which state authority and regulatory power were frequently transferred between different ministries and between the central and local governments.⁵² The incessant power struggle has left a negative legacy and institutional constraints on the development of a modern regulatory system. Unlike other industries during the regulatory transition, the power industry experienced a 'regulatory vacuum' between 1998 and 2003; there was no specified regulatory agency in the central state. Regulatory power was dispersed to two comprehensive commissions, the State Economic and Trade Commission (SETC) and the State Development and Planning Commission (SDPC). This discontinuity of regulatory authority has had a significant impact on the creation of new state regulator later while the central state has adopted a phased reform to restructure the industry.

In the 1980s, the policy of liberalization was introduced in order to alleviate capital shortfalls and many small-scale, local state-owned and collective-owned power stations sprouted quickly. In 1997, a giant SOE, the State Power Corporation of China (SPCC), was established to take over all the central state assets in the industry to follow the promulgated strategy of separating government and business. Later in 2002, the industry welcomed another comprehensive restructuring in which the generation sector and the transmission and distribution sector were segregated. The SPCC was dissolved and its assets were distributed to seven newly-formed central SOEs. Five of them are power groups which possess the power plants nationwide: China Huaneng Group, China Guodian Corporation, China Huadian Corporation, China Datang Corporation, and China Power Investment Corporation. The other two are grid companies, State Grid Corporation and China Southern Power Grid, which own the network systems. The

⁵² Detailed information about the development of the electricity industry and the shift in regulatory regime is further introduced in the next chapter.

establishment of State Electricity Regulatory Commission in 2003 marked a big stride in the development of the regulatory system in China’s industrial sector. It is the first industry-specific IRA in the non-financial sector. Nevertheless, the SERC has encountered difficulties from both inside and outside the organization since its inception.

Although the SERC was established at a time when the industry was undergoing restructuring, it was not designed to be as autonomous as expected – it turned out to be entangled in the broader governmental structure. The SERC was not delegated full authority, so it must negotiate/cooperate with other government agencies, especially the NDRC, on prices and review of construction projects. The policies of liberalization in the generation sector and corporatization of the central SOEs further complicate the situation and prevent the state from establishing the power market. The close ties with the state give the public power companies a way to exploit the reform process and influence regulatory process.

Among the abovementioned three industries, the SERC in the power industry has the most difficulties performing tasks and is unable to promote market operation and ensure fair competition. Yet, it is the only regulatory agency that enjoys institutional autonomy. Although the state regulators in the civil aviation and telecommunications industries are not IRAs, their authorities and functions have been incrementally clarified and strengthened as the reform has proceeded. The CAAC and MIIT have greater autonomy and can better regulate the dominant central SOEs because these companies have been separated and transformed from the subordinates to the regulated. Regulatory performance and market development are decided not by whether the regulator maintains a distance from other government institutions and regulated firms, but by the extent to which it can consolidate its discretion and enforce its responsibilities accordingly. Hence, the CAAC and MIIT are able to encourage market competition and manage the reform process while governing the SOEs well. The SERC, a model IRA, fails to foster competition and prevent oligopolies (see Table 2-3).

Table 2-3: Regulatory Development in the Selected Industries

Industry	Regulatory Condition	Market Outcome
Civil Aviation	Functional IRA Effective	Competitive Market Public & Private Firms
Telecommunications	Functional IRA Effective	Competitive market Public Firms
Electricity	Nominal IRA Ineffective Regulation	Non-competitive Market Public & Private Firms

We then turn the focus to the regulatory paradox in China's electricity reform. By adopting the embedded regulation approach, I describe the reform dynamics and examine how the various actors interact in detail. In the next chapter, I examine the different stages of industrial development and the regulatory situation and present an historical account which shows how the political struggles among separate government bodies have left lasting legacies that result in the current dilemma.

CHAPTER THREE

THE EVOLUTION OF REGULATORY SYSTEM IN CHINA'S ELECTRICITY INDUSTRY: A HISTORICAL REVIEW

The historical legacies and institutional transition have imposed unavoidable influences on state-business relationship and the formation of current regulatory mechanisms in China's electricity industry. An overview of the industrial development and the interactions among the central state, local states, and power companies illuminates the political logic and dynamics of regulatory development and reflects a dilemma that other industries may encounter while creating IRAs.

The Chinese state has been devoted to developing the electricity industry since the 1950s. Before adopting the current structure, the power sector went through several stages under the purview of various ministries. At each respective stage, the central state formulated certain policy strategies and mobilized resources to achieve its goals. The most distinctive characteristic is that the managerial and regulatory authority has frequently switched between the central and local governments. The central state lacked the capacity to supervise the complex industry effectively, and the local states strived to erect protectionist barriers and shelter their own interests. During the Cultural Revolution, the situation worsened because of excessive political intervention. The regulatory agency was in a debilitated state and malfunctioned. Although regulatory governance has been restored during the reform era, vestiges of the previous stages have not been eliminated and have actually remained influential. Hence, the new regulatory system is not a ground-breaking installation but an awkward arrangement comprised of conflicting interests.

I. Monopolizing the Industry: Nationalizing the Sector and Faltering between Centralization and Decentralization 1949~1978

Between the establishment of the People's Republic of China in 1949 and the onset of the economic reform in late 1978, the development of the power sector is identified as having three stages, based on the terms of each lead ministry: the Ministry of Fuel Industries (MFI, 1949-1955), the Ministry of Electricity Industry (MEI, 1955-1958), and the Ministry of Water Resources and Electricity (MWRE, 1958-1979). Over the course of three decades, how the Chinese state has developed and managed its power sector can be illustrated in five distinct features. They are the foreign aid, fragmented administrative structure, frequent transfers of authority between the central and local states, unstable policy prescriptions, and extensive political interference. The interaction among these elements constructed a fragile industry. The

MFI was established in 1949 to supervise the energy sector, including the electricity, coal, and petroleum industries, as the central government nationalized the relevant assets and centralized state control. At that time, the industrial structure of electricity sector was very backward and segmented, and the power companies were regulated by the local governments at various levels. Later, six regional power bureaus, covering the central, eastern, northern, northeastern, southern, and southwestern areas of China, were created to incorporate the managerial system. The MFI, however, only directly managed one of them, which was the Northern Electric Power Bureau. The remaining five were subordinated to either the regional governments or military affairs commissions (*junguanhui*).⁵³ This irregular supervisory structure had its roots in the chaotic political environment of the early 1950s. In preparation for the economic expansion projected in the First Five-Year Plan (1953-1957), the MFI reorganized the electric department and extended its authority to the whole country. All six regional bureaus were under its jurisdiction. The major goals were to construct coal-fired power plants and to explore water resources for future hydropower development. Among 156 large-scale, capital-intensive industrial projects aided by the former Soviet Union, there were 23 coal-fired power plants with a total installed capacity of 1365 megawatts (MW), compared to that of 1964 MW in China in 1952. Seventy per cent of them were put into operation by 1957. Most power plants were located in North and Northeast China, the areas abundant in coal resources (DZCBW 1994, 36-37).

In the second session of the First National People's Congress (NPC) in 1955, the MFI was replaced by three specific ministries -- the Ministry of Coal Industry (MCI), the Ministry of Oil Industry (MOI), and the MEI -- to respond to increasing demands as the business matured. With the MEI's efforts, the nationalization of power assets and centralization of state control was generally achieved. The MEI comprehensively governed the power sector and acted as owner, manager, policy maker, and regulator. Nonetheless, the situation did not last long. In 1957, because the government bureaucracy was growing ponderous, the central leadership determined to streamline the industrial sector and decentralize authority. In the power industry, the industrial framework was restructured and the dual-leadership system (either the central state as principal and the local state as subsidiary or the local state as principal and the central state as subsidiary, depending on regional circumstance) was adopted in both power enterprises and administrative bureaus. The MEI transferred some of its power plants and grid systems to local governments in order to alleviate its burden. On the basis of dividing the grid system and clarifying administrative responsibilities, 15 provincial power bureaus were created to replace the existing regional power bureaus.⁵⁴ Unfortunately, this restructuring failed to develop power companies

⁵³ For example, the Northeast Electric Power Bureau was administered by the Northeastern People's Government. The Northwest Electric Power Bureau was led by the Northwest Military Affairs Commission.

⁵⁴ The regional power bureaus were reestablished in 1962.

into substantial economic entities and provoked serious coordination problems among provinces (DZCBW 1994, 51, 844).

In his speech at the Fifteenth Session of the Supreme State Conference in September 1958, Chairman Mao Zedong proposed that the electricity and railway industries are the two ‘pioneers’ in developing the national economy (Mao 1998). Hence, the central government gave first priority to developing the power industry, with a focus on the hydropower section. In order to facilitate the process, the MEI and the Ministry of Water Resources (MWR) were merged to form the Ministry of Water Resources and Electricity (MWRE). The MWRE modified the management framework and handed over more regulatory authority to the local governments. It directed only a few large-scale constructions and cross-provincial networks in North and Northeast China. As a result of decentralization, the provincial governments had sole discretion over the electricity industry. Each of them had instituted a certain department to administer relevant affairs (DZCBW 1994, 39, 845-846). In the meanwhile, the power industry was unable to avoid continuous political intrusion. Two extensive industrial development programs, the Great Leap Forward and Third Front, had significant political influence and resulted in pervasive negative impacts, such as misallocated resources and unrealistic production goals. Many projects adopted the method of ‘three-ings’ (*san tongshi*) -- exploring, designing, and constructing simultaneously -- in order to shorten construction time. This was against the normal procedure, so the projects later were forced to be abandoned, suspended, or delayed. A striking example is that 18 construction projects with a total installed capacity of 4858 MW and an investment of 42.6 million yuan were suspended in the early 1960s and never resumed (DZCBW 1994, 47). The increasing number of industrial accidents and the extravagant use of both human and financial resources had not promoted development but regression.

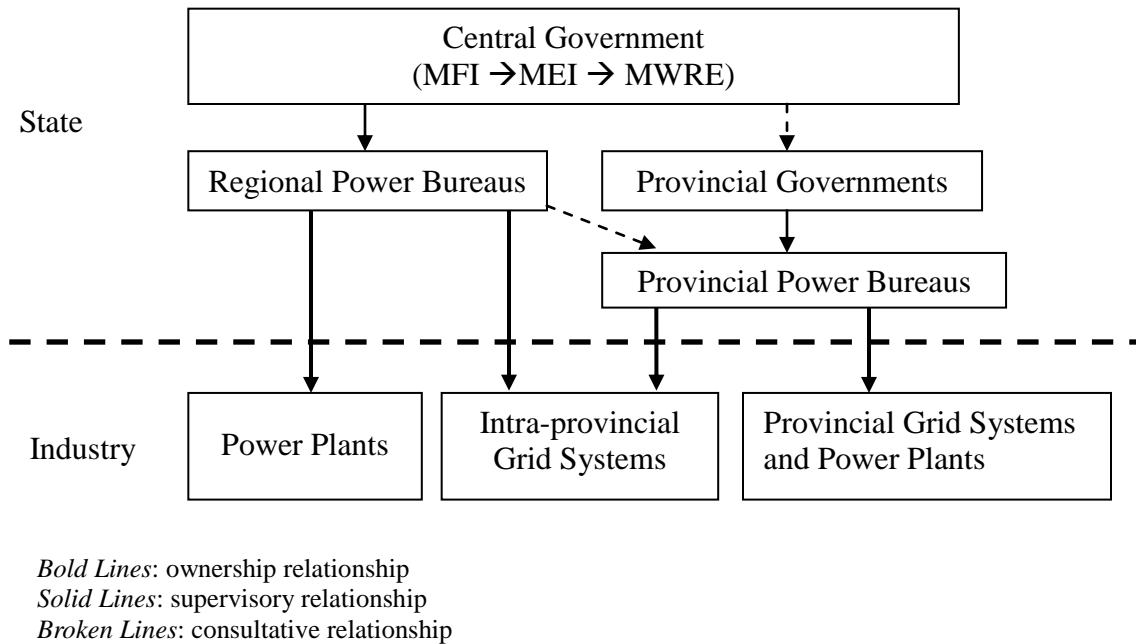
When the Cultural Revolution was launched in 1966, the power sector faced an even more severe environment in which all expansion plans were designed in accordance with radical political mobilization. The military committee (*junweihui*, which was later replaced by the revolutionary committee (*geweihui*)) formally took over the MWRE and the top officials of the MWRE became merely a figurehead. It grasped the power and proposed policy goals that were irrational and led to devastation. Electricity-generating equipment was overloaded and destroyed, and the research and technology teams were disbanded. In the early 1970s, the military committee heavily criticized the vertical hierarchical control and advocated the enhancement of horizontal geographical administration. The provinces were assigned as operating units and controlled their own grid systems. The electricity distribution was originally collectively arranged by the central government, but it was then converted into a system in which the provinces negotiated with each other (DZCBW 1994, 54-61). Accordingly, the cross-provincial

networks were only loosely interconnected because there was very little investment from the central government. Local protectionism thrived to guarantee a stable power supply for local use when the power shortage was worsened by incessant political turmoil.

At the last stage of the Cultural Revolution, two significant documents that described emerging strategies for revitalizing the electricity industry were issued. In the “Circular concerning the acceleration of developing the electricity industry (*Guanyu jiakuai fazhan dianli gongye de tongzhi*)” (State Council [1975] No. 114), the State Council clearly recognized that the current power outages resulted from the fragmented grid systems and the destruction of power plants. The major solution was to integrate the networks and speed up power plant construction. The State Council later approved the “Circular concerning the measures for managing inter-provincial grid systems (*Guanyu pizhun kuasheng dianwang guanli banfa de tongzhi*)” (State Council [1975] No. 159), in which it asked the MWRE to coordinate with the local governments for electricity transmission and to formulate regulations on inter-provincial grids supervision. In a particularly tumultuous era, the promulgation and implementation of these two policies was indeed profoundly meaningful for the suffering power sector as it rectified the wrong direction the industry had taken in the past decade. In addition, in the Southern provinces with their rich water resources, the provincial governments started to distinguish between the complex administrative functions of the water resources and electricity affairs by creating respective administrative agencies to take charge in 1975.

In short, after nationalizing power assets in the early 1950s, there was no distinction between government and enterprises; the power industry became a vertically-integrated monopoly (see Figure 3-1). Its development across three decades had been extremely unstable because the regulatory authority frequently changed hands between the central government and local government. A complex and heterogeneous administrative structure caused serious coordination problems. The adoption of dual leadership did not improve regulation, but obscured responsibilities. Comprehensive political meddling and impractical production plans further aggravated the whole industry. The central and local states performed as owner, administrator, and operator at the same time. While the Chinese state was calling for fundamental changes in the whole country in late 1978, the power industry it relied on was in a fragile and chaotic condition.

Figure 3-1: Supervisory Framework in the Power Industry before 1979



II. Revitalizing the Industry: Bringing the Government back in 1979~1985

On the eve of launching the economic reform, the rigid state ownership and financial difficulties had prevented increases in capital investment in power plants and relevant infrastructure. As a result, the power supply became a major bottleneck in improving the national economy. While advancing into the reform era, the central government first disassembled the MWRE and reinstated the MEI and MWR and their administrative functions in 1979. The MEI was in charge of electricity affairs, but the responsibility to manage hydropower generation belonged to the MWR. At this time, the government was tasked with the construction of coal-fired power plants and hydropower stations as well as the restoration of existing power generation conditions. In view of the stagnation and devastation of the infrastructure during the Cultural Revolution, many construction projects were initiated in the early 1980s. In the generation sector, the development plans were to build the power plants close to either coal mines and water resources or to coastal-area cities with high consumption. In the transmission and distribution (T&D) sector, the core issues were to interconnect the grid systems across provinces and to construct high-voltage transmission lines that could carry electricity long distances. Regarding corporate governance, the power companies were granted greater autonomy and responsible for their business performance. Productive efficiency was remarkably improved (DZCBW 1994, 77-79).

In the Sixth Five-Year Plan (1981-1985), the MEI produced a proposal to reorganize the power industry according to the reform agenda. This agenda, symbolized by the eight-character slogan of “readjustment, restructuring, rectification, and improvement” (*tiaozheng, gaige, zhengdun, and tigao*), was advanced by the State Council as preparation for fostering economic growth. The major principles were to concentrate authority in the center and allocate electricity collectively. The regional electricity bureaus were again founded to supervise electricity affairs in each area. By the end of 1981, only six provinces retained sole discretion over electricity affairs.⁵⁵ In the fourth session of the Fifth NPC in March 1982, the MWRE was instituted again by integrating the MEI and MWR after having been dissolved for just three years (DZCBW 1994, 65-66, 866-867). This was due to the intense contradiction and ambiguous responsibilities between the two ministries. The new MWRE followed the previous policy direction to recentralize authority and regard regions as operating units. Two characteristics resulted from the reinstatement of MWRE: a new form of dual leadership (the central state as supervisor and the local state as subordinates) and a region-based management system. In 1984, the MWRE received a \$145 million (US) loan from the World Bank. This was the first time that foreign capital had been invested in China’s power industry since the former Soviet Union withdrew its aid in the early 1960s.

After the two important documents (State Council [1975] No. 114, 159) were issued in 1975, the Chinese state spent a decade ascertaining the administrative structure. A noteworthy phenomenon is that the demarcation lines of the regions have in fact changed from time to time since 1949; that is, the areas the regional power bureaus reigned over varied in line with the conditions of the inter-provincial networks. This was because the central government had to coordinate local interests and consider the infrastructure and environment. Till the mid-1980s, the central government remained unable to transfer authority over electricity affairs in three provinces - Guangdong, Inner Mongolia, and Tibet - to the appropriate regional power bureaus.

During this phase, the central government faced the difficult challenge of revitalizing the power industry and thus creating a firm base to support rapid economic growth. With a large amount of capital investment and the clarification of the industrial structure, a certain degree of success had been achieved in relieving nationwide power shortages. Nevertheless, the existing framework was not really able to accommodate fast-changing demand; thus, many incompatibility problems emerged. The need for a comprehensive restructuring plan was urgent and unavoidable.

⁵⁵ They are Fujian, Guangdong, Guangxi, Inner Mongolia, Tibet, and Xinjiang.

III. Liberalizing the Industry: Breaking up the State Monopoly and Opening up Power Generation 1985~1997

In 1985, the State Council promulgated the “Provisional Regulations on Promoting Fund-Raising for Investment in the Power Sector and Implementing Various Prices (*Guanyu guli jizi bandian he shixing duozhong dianjia de zhanshi guiding*)” (State Council [1985] No. 72), an official document which marked the initiation of a long-term and large-scale electricity reform.⁵⁶ The central government encouraged local governments, ministries, and enterprises (both domestic and foreign) to invest in constructing power plants and adopted multiple electricity prices in order to relieve the power supply shortage that resulted from insufficient capital and surging demand. The generation sector experienced a process of liberalization and the barriers to market entry were lowered to attract more diverse investment (Yang & Yu 1996, 745-747). The various forms of power plants were introduced to China and to a great extent increased the power supply in a short period of time.⁵⁷ In 1987, then-Vice Premier Li Peng elaborated the guidelines of the electricity reform: separating the government from enterprises (*zhengqi fenkai*); regarding the provinces as functional entities (*sheng wei shiti*); interconnecting the grid systems (*lianhe dianwang*); dispatching electricity collectively (*tongyi diaodu*); and raising capital investment in the power industry (*jizi bandian*), all of which shall be implemented under appropriate circumstances. However, the policies’ goals are in fact contradictory. The idea of making provinces into operating units, which aims to develop an independent power market in each of the provinces, runs against two other policies; integrating the fragmented networks and distributing power collectively, which grant the MWRE and regional power bureaus higher control. Simultaneously, strengthening local authority over power development and increasing managerial capacity of the central government did not mitigate the discrepancies between the central and local states. Rather, the reform implementation further deteriorated the central-local relationship.

In the administrative restructuring conducted in 1988, the new Ministry of Energy (MOE) was formed to incorporate the functions of several previous ministries, including the MWRE, MCI, MOI, and Ministry of Nuclear Industry. It comprehensively managed the whole energy sector and facilitated the sector’s development at large. Moreover, the industry association, the China Electricity Council (CEC), was created to undertake a variety of tasks and to serve as a

⁵⁶ The regulation was invalidated in January 2008 according to the State Council “Decision on the Repeal of Some Administrative Regulations (*Guanyu feizhi bufen xingzheng fagui de jueding*)” (State Council [2008] No. 516).

⁵⁷ Distinguished by different types of ownership, they are public-owned; private-owned; joint ventures; build-own-transfer (BOT); initial public offering (IPO); and transfer, operate, transfer (TOT). See Bellier and Zhou (2003, 69-76).

bridge between the government and industry. It provides consultation and advice to power companies and plays the critical role of coordination in assisting reform implementation. The CEC also collects the necessary information for policy makers in the government and delivers the industry's feedback and concerns to the government. To date, both the state and companies continue to rely heavily on this communication channel.

The central government implemented a two-step reform in 1988 and 1993. First, according to the policy of corporatization, the regional and provincial power bureaus were to be transformed into power companies, which had the independent status of legal personality and were responsible for their own profits and losses by 1990. Provincial power companies that were managed by both the MOE and provincial governments remained under dual leadership but were leaning toward the latter because of their increasing autonomy (Yang & Yu 1996, 738-39). Second, between 1991 and 1993, the MOE developed five giant power enterprises (central, eastern, northern, northeastern, and northwestern) on the basis of regional power companies. In Southern China, the MOE dissolved its own Office of Southern China Grid and asked four provinces (Guangdong, Guangxi, Guizhou, and Yunnan) to found the Southern China Power Company jointly. This company operated the inter-provincial network systems, developed hydropower, and carried out the immense project of transferring the electricity to East China.⁵⁸

Although the MOE reigned over different industries, it was unable to apply a similar reform program to all of them and needed to design separate projects to meet specific requirements of each industry. For instance, the state can only partly liberalize and privatize the power industry because of its public-service character and the technological limitations on natural monopoly. Due to these features, the electricity industry lies somewhere in between two other energy industries: coal (fully privatized) and petroleum (wholly state-owned). The unsolvable difficulties in coordinating and managing various industries resulted in the abrogation of the MOE. The Chinese government had set up a similar national-level institution, the State Energy Commission, in 1980 to coordinate energy affairs, but it only existed for two years because it proved to be unable to deal with the fundamental conflict of interest among various industries. In 1993, with another round of administrative reform for the central government, the MOE was dissolved and the MEI was formed again. This was the third occasion since 1949 that China had instituted the MEI, but this time it only existed for five years. The MEI followed the existing guiding principles and kept the industrial structure intact. The CEC further strengthened its role as coordinator under the MEI because some senior retired officials who were powerful and familiar with the industry took posts there. Meanwhile, in order to further expand investment resources, power companies were allowed to be listed on the stock market and thus accumulated

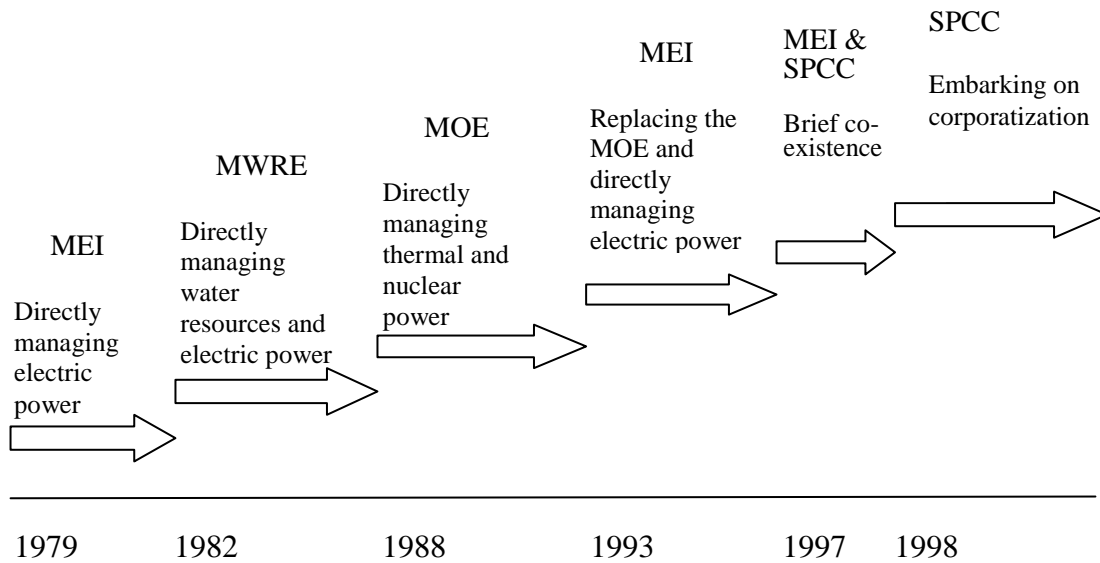
⁵⁸ Hainan province was included after 1988.

more capital. Another breakthrough in the late 1990s was the promulgation of the Electricity Law, which was passed by the NPC in December 1995 and put into effect in April 1996. It provided a legal basis and comprehensive framework for the following reform and general provisions for the industry.

The overall goal for the electricity industry in the first two decades of the reform era was to terminate the state monopoly and prepare for a thorough restructuring. Nevertheless, without the corresponding structural adjustments, two serious problems emerged. Firstly, private independent power producers (IPPs) were competing with the state-owned power enterprises on an unequal basis within a problematic industrial structure. The government exploited the control of the grid system and distributed more utilization hours to its affiliated power plants (APPs) than to the IPPs. The APPs naturally were more profitable. The situation became worse when the power demand was more than the supply. Secondly, emphasizing the functions that the provinces shall perform deteriorated the central authority and promoted decentralization. Accordingly, local protectionism thrived. In the provinces with abundant power supply, the local governments used this advantage to nurture industrial development instead of selling the extra electricity to other provinces with greater demand or less supply. The underdeveloped cross-provincial grids and lack of a trading platform also restrained nationwide power transmission. Generally speaking, China's power sector was self-sufficient nationally in the 1990s because the raw materials – coal mines and water resources – were plentiful and the diversified investments were available in elevating generating capacity. The frequent power outages in the coastal provinces reflected the unbalanced supply-demand relations at the local level.

Despite the many actions undertaken to reorganize the industry, the Chinese state had not touched the fundamental issue of comprehensive industrial restructuring, which involves administrative, regulatory, and business aspects. The frequent reorganization of the administrative agencies showed that the central government had been groping for a feasible method to manage the power sector (see Figure 3-2). The modest progress in reform and the dominant state ownership had kept the industry under control at large, but the growing influence of local governments challenged the vertical supervisory structure as they strived to protect their own interests. The earlier achievement was soon proven to be temporary and it introduced both structural and regulatory paradoxes. With the enforcement of the separation of government and enterprise, the central government embarked on a new stage of power reform which completely restructured the industry.

Figure 3-2: Transition of Central Authority of the Power Industry 1979~1998



IV. Restructuring the Industry (I): Moving toward the Market 1997~2002

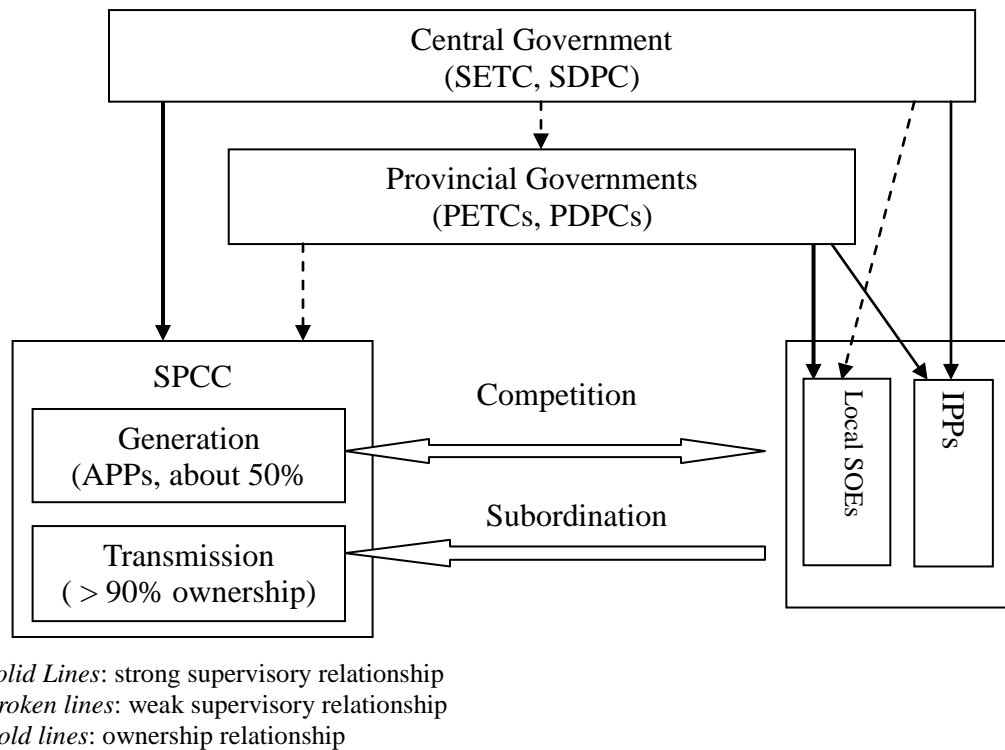
An ambitious, extensive restructuring plan for the power industry was undertaken in 1997. The first step was regarded as laying the structural foundation for the subsequent reform. Due to economic concerns, the central government chose a policy of corporatization instead of wholesale privatization of power assets (Andrews-Speed & Dow 2000, 343). The State Power Corporation of China (SPCC) was founded in 1997 as a separate economic entity to perform business functions. A colossal holding company that was fully owned by the State Council managed most of the infrastructure, including about 50 per cent of power generation and almost the whole T&D sector.⁵⁹ In the meeting of the Ninth NPC in March 1998, the central government formally dismantled the MEI and transferred the functions to the SETC and SDPC. Thus they were the two major regulators of the power industry and had authority over separate issues. The SETC was responsible for providing the guiding principles, making policies, and supervising the industry, while the SDPC controlled the pricing systems and reviewed the investment projects. At the local level, the provincial economic and trade commissions (PETCs) and provincial development and planning commissions (PDPCs) took on the responsibilities of managing the electricity affairs.

At this point, the state had successfully and completely separated enterprise from government. The accomplishments included a significant reduction in the institutional difficulties

⁵⁹ A small proportion of the T&D network was owned by the village and town governments that provided the services over limited areas, but these grids were managed and operated by the local power companies.

involved in the unification of governmental administration and business functions, clarification of duties, decrease in the misallocation of resources, and improved economic efficiency. In addition, the ownership and operation rights were distinguished so that the SPCC concentrated on its economic role without taking on administrative responsibilities as the MEI did. Competition between the SPCC and IPPs was gradually cultivated (see Figure 3-3).

Figure 3-3: Industrial Structure of the Power Industry 1997~2002



An experiment on introducing the power market, which had never existed before in China, was implemented in six pilot administrative regions, including Heilongjiang, Jilin, Liaoning, Shandong, Zhejiang, and Shanghai in 1999.⁶⁰ These places served as a testing ground for two reform projects: the separation of power plants and power grids (*changwang fenkai*) and the introduction of competitive prices to power plants in accessing the grid systems (*jingjia shangwang*). These experimental programs were designed to break up the vertically-integrated monopoly and cultivate competition in several provinces. They, however, faced strong resistance from the SPCC and halted in 2001 because they endangered the SPCC's monopolistic dominance.

⁶⁰ See "Circular concerning the relevant issues of further reform in the electricity industry (*Guanyu shenhua dianli gongye tizhi gaige youguan wenti yijian de tongzhi*)" (General Office of the State Council [1998] No. 146).

Another reason is that while these programs were initiated as a response to decreasing demand due to the microeconomic slowdown in the Asian Financial Crisis, the quick return to rapid economic growth and an upturn in demand obstructed enforcement (Zhang & Heller 2007, 78-79, 100-101). The failures however provided valuable preliminary experiences and paved the way for the next stage of reform, at which the separation of the generation and T&D sectors was carried out.

During the same time period, tremendous growth in generating capacity, one of the most critical elements that bolstered the rapid economic achievement, turned into a liability because power consumption lagged behind and the power plants reported deficits. In response to the power surplus, in 1999 the SDPC promulgated a policy, known by then-Premier Zhu Rongji's noted phrase 'the suspension of thermal power plant projects for three years' (*sannian bushang huodian*), to hold down the increase in generating capacity. Ironically, the policy contributed to a severe power shortage in the ensuing years.⁶¹

In 2000, the general manager of the SPCC, Gao Yan, described a four-stage reform in which several policy goals were reemphasized.⁶² The first stage (1997-1998) aimed to transfer the business functions from the government to the new SPCC under the framework of a socialist market economy. The second stage (1998-2000) focused on corporatizing the regional and provincial power bureaus and introducing a modern enterprise system. The third stage (2001-2010) was designed to separate the power plants and network systems on the basis of a nationwide integrated grid system and to bring in free-market competition in the generation sector. The fourth stage (2010-) is scheduled to further distinguish between the transmission and distribution sectors and to form a national power market. While the first two phases were generally achieved, the existing structure was unable to accommodate the reform plans that were to follow. In view of this, the scheme indicated the transitional character of the SPCC and predicted that an essential industrial restructuring was imminent.

While the financing predicament and insufficient generating capacity were resolved as the reform steadily advanced, new problems emerged from the implementation. One paradox is that although the SETC and SDPC replaced the former MEI to enforce state regulations, the SPCC remained very influential because it enjoyed a monopoly status through the vertical integration of the industry. In the absence of both a specific ministry in the central government and an effective market mechanism, the SPCC is not only a monopoly enterprise but also a

⁶¹ See "Notice on relevant issues concerning the adjustment of the structure of power construction in the second half of the Ninth Five-Year Plan (*Guanyu "jiuwu" houqi tiaozheng dianli jianshe jiegou youguan wenti de tongzhi*)" (SDPC [1999] No. 182).

⁶² "Guojia dianli gongsi gaige queding fen 'sibuzou' (The SPCC Affirmed a Four-stage Reform)," June 3, 1999, <http://business.sohu.com/history/990603/stock/file/589xinhua.html>, accessed November 5, 2008.

‘corporatized ministry’ if we look at its personnel arrangements. Most officials of the former MEI had transferred to the SPCC instead of moving to the SETC after 1998. Moreover, the last Minister of Electric Industry, Shi Dazhen, held a joint appointment as the first general manager of the SPCC in 1997 and then took a full-time appointment there after 1998. Similarly, four then-Deputy Ministers of Electricity Industry followed the similar career trajectory Shi did. Same leadership has led to an essential regulatory dilemma inherited from the planned economy: the central state was both owner and regulator, which indicated the dual role of player and referee. Technical expertise is another critical factor that prevents the state regulators from effective management. The officials of the SETC and SDPC did not have enough professional knowledge to supervise the technological issues.

Another paradox is that the major reform was done at the central level and did not affect the administrative system at the local level, which was incompatible with the market-oriented reform plan and was growing its own diversified operating entities. In a provincial government, the PETC and PDPC were the supervisory institutions responsible for electricity affairs. They were directly subordinate to the provincial leadership and did not necessarily follow the central directives. Hence, the issues of fragmentation and autonomy of the various government departments and administrative regions (*tiaotiao kuaikuai*) plagued the power enterprises because the macroeconomic projects designed by the central government did not always coincide with the local development plans. In search of rapid economic growth, the provinces rich in power supply preferred to encourage domestic industrial development, especially the energy-consuming heavy industries. In return, the provinces garnered ample revenue. Therefore, the inter-provincial power trade was not very profitable to them because a rigid price mechanism did not reflect the true relationship between supply and demand. In addition, the inter-provincial barriers remained unresolved: there was no regional power market as a trading platform and the underdeveloped long-distance transmission system prevented provinces from facilitating inter-provincial electricity exchange. As a consequence, the local protectionism inherited from the previous stage had not been alleviated, but intensified (Xu & Chen 2006).

In short, in this phase, the central state made a critical stride for reform by transferring business functions to an economic entity, the SPCC. Meanwhile, the corresponding change in the administrative and regulatory system was the elimination of the MEI and the redistribution of its authority to the SETC and SDPC. This was the first time since 1949 that there has been no specific central-level regulatory body to supervise the power sector. Although the MEI worked with the Ministry of Finance and the World Bank on a proposal for a new regulatory system that focused on the establishment of a national-level, independent regulatory commission, their efforts were not substantiated at this stage (Shao et al. 1997). The discontinuity has imposed

negative and irreversible effects on the creation of a new state regulator and on the comprehensive reform plan scheduled to be implemented at the next stage. Unfortunately, these impacts were not foreseen; the unanticipated outcome is that the state-business nexus was entirely altered.

V. Restructuring the Industry (II): Establishing a Modern Regulatory System 2002~

Building on the preceding reform progress, the Chinese government advanced to the second step in 2002. It intended to reorganize the power industry again according to the so-called ‘Document No.5,’ the “Circular concerning the reform of the electricity industry (*Guanyu yinfa dianli tizhi gaige fang’an de tongzhi*)” (State Council [2002] No. 5). This official document was regarded as a landmark reform project to initiate another complete restructuring process and adopt a whole new regulatory mechanism. The core concerns were industrial reshuffling, state regulation, and market competition. Although the general guiding principles merely employed the policy slogans that had already been reiterated at the previous stages, the reform implementation showed radical shifts in both market development and regulatory management.

Two decisive actions have transformed the industrial framework and state-business relations in the power industry. First, the central state mandated the divestiture of the SPCC in order to break up a monopoly. The State Council dismantled the SPCC, which owned half of the nation’s generation assets and 90 per cent of the nation’s T&D assets, into the ‘Big Five’ – CPIC, Datang, CGDC, CHDC, and Huaneng – along with two grid companies – SGC and CSPG. Non-core business divisions were allocated into four new companies - China Gezhouba Group Corporation, China Hydropower Engineering Consulting Group, China Power Engineering Consulting Group, and Sinohydro Corporation. The whole process signified that the segregation of the generation and T&D sectors had finally been achieved and that each company has its own business activities. At the beginning each of the Big Five had an equal share of the generating assets of the SPCC, but no more than 20 per cent in a single province. That is, none of them could be a dominant actor in any of the provinces, thus promoting competition. The T&D section of the SPCC was distributed into the SGC and CSPG on a geographic basis. The SGC and its regional and provincial subsidiaries own the network systems covering the whole country except for five provinces (Guangdong, Guangxi, Guizhou, Hainan, and Yunnan) which are controlled by the CSPG. The SGC and CSPG are responsible for the construction, management, and operation of the power grids in each sphere of influence. The only exception is Tibet, where an independent grid system exists and is not interconnected with any other network. The ownership of these giant power enterprises was transferred to the new government agency, the SASAC. Although

the central state plans to further separate the transmission and distribution sectors, the new general structure of the power industry has been confirmed.

Second, an independent regulatory agency, the SERC, was formally created at the central level in 2003. While the logic of China's industrial reform is to clarify the functions of the government in order to meet the rising needs of a market economy, it is designed to keep governmental institutions away from running profit-making businesses and to differentiate the regulatory and policy-making functions. Fourteen industrial ministries were abolished to promote the separation of government and business in 1998 (Lan 1999, 31).⁶³ These industries were then regulated by either the newly-established bureaus under the ministries or the multi-sector regulatory agencies, such as the State Administration for Industry and Commerce or State Administration of Work Safety. Although the power industry was an exception because it had no specific state regulator immediately after the abolishment of the MEI, it eventually had the first institutionally independent state regulator in the Chinese industrial sector. The creation of the SERC represented the state's determination in building up a modern regulatory system and in settling long disputes over state-business relations. The role of the state was distinguished so that it is no longer both owner and manager, but separate owner (SASAC) and regulator (SERC). While both the state and the industry embraced this new agency, it was too early to presume the effectiveness of the SERC's performance. Later on, reform stagnation and the regulatory contradiction revealed the reality: the SERC suffered from both endogenous and exogenous defects and had been exposed to regulatory capture from its inception.

⁶³ They were the Ministries of Chemical Industry; Coal Industry; Electricity Industry; Electronics Industry; Forestry; Geology and Mineral Resources; Machinery Industry; Metallurgical Industry; Post and Telecommunications; Radio, Film, and Television; National Councils of Light Industries; and Textile Industry; State Commission for Science, Technology; Industry for National Defense; and State Commission for Restructuring Economy. Also see "Jigou gaige bushi turan qidong (The Administrative Reform Has Not been Launched Unexpectedly)," *Liaowang Dongfang Zhoukan (Oriental Outlook Weekly)*, April 16, 2008, http://www.lwdf.cn/oriental/current_events/20080313111215885.htm, accessed April 4, 2009.

CHAPTER FOUR

THE POLITICS OF REGULATORY DEVELOPMENT: A HYBRID REGULATORY AUTHORITY

In China, the regulatory reform was not actively initiated by the central government at the same time as the economic reform. The two processes of regulatory reform, namely the creation of a modern regulatory system and the development of the state's regulatory capacity, emerged in reaction to the increasing demand for a functioning market. In Chinese industrial reform, the establishment of an independent regulatory agency has never been given a priority, nor was it incorporated into the early design stages of the reform. Instead, the central government adopted a two-step strategy to separate government and business first and then to split politics from regulation (*zhengjian fenkai*). The first step aimed to clarify the role of the state and create conditions for the remaining state-owned enterprises (SOEs) to transform into modern enterprises. The second step had the distinctive target of distinguishing the functions of government institutions between policy-making and state regulation.

Differentiating the policy-making and regulatory entities is regarded as the ultimate goal of industrial reform. Unlike Western countries, in which policy-making functions are not necessarily separate from regulatory functions, the Chinese government takes this defensive action in order to prevent the SOEs' state-imposed policy burdens that the state imposes on the SOEs from interfering with regulatory effectiveness. However, the lesson we have learned from the industrialized countries is that a functional regulatory mechanism should be established in advance of or at least concurrent with reform implementation. Otherwise, the regulatory system runs the risk of obtaining only limited discretion and insufficient resources and being captured by vested interests. The SERC of China's electricity industry is a representative case reflecting such a predicament. Investigating the establishment and operation of the SERC provides us with a clear understanding of the current predicament of both the power reform and regulatory development in the industrial sector.

I. The Political and Economic Context of Regulatory Development

As technology develops, the power sector loses its status as a monolithic entity and can be unbundled into competitive and monopoly elements. Generation is a structurally contestable sector which requires a market mechanism to facilitate transactions. Transmission and distribution (T&D) remains a natural monopoly which should be placed under heavy regulation and even operated by the state. According to these distinctive characteristics, the Chinese

government launched a comprehensive restructuring of the power sector in 2003. The whole process started with dismantling the State Power Corporation of China (SPCC) and culminated in the creation of the State Electricity Regulatory Commission (SERC). The goals of the reform were to correct the distorted industrial structure formed in 1997, in which the SPCC was a monopoly, and to alleviate rampant local protectionism. Although the policies of liberalizing the industry and encouraging private investments largely relieved the power shortage in the late 1990s, three major problems emerged. First, the SPCC monopolized the networks so that its own or affiliated power plants enjoyed the privilege of transmitting electricity when there was an electricity glut. Because electricity cannot be stored and generation must match use, the independent power producers (IPPs) were forced to suspend or perform maintenance, thereby losing profits. Competition was eliminated. Second, a rapid increase in generation capacity was reached at the expense of production efficiency. The small-scale coal-fired power plants had sprung up since the early 1990s because of three distinctive features – a shorter construction period, less investment, and quicker return (*duan, ping, kuai*). These power plants, however, have brought about the problems of high energy consumption, serious pollution, and low efficiency. Moreover, the central government adopted the cost-plus-pricing model for the newly-created power plants. The basic idea is that prices are decided by the unit cost plus a fair profit margin (which could be up to 20%), but there are no specific constraints on the manufacturing cost. As a result, greater investment yields higher prices. Power companies had no incentive to control the expenses that go into the production process of power plants, so they continued to expand instead. Third, inspired by the policy guideline of “making provinces into operating entities,” the local governments had enthusiastically invested in power generation since they would be able to both solve the power shortage and earn revenue. It also contributed to the rising barriers to electricity trade across provinces. A noteworthy case is the Ertan hydropower station of Sichuan, a substantial project funded by the World Bank and Chinese government. However, it had been besieged by local government interests and the expansion of small-scale thermal power plants since its start-up in 1998. In 1999, the power plant was running at about 50 per cent capacity and had lost 1 billion yuan over the year (Hu 2002).

In short, the development of the power industry between 1985 and 2002 had successfully expanded generation capacity and accelerated electricity production but largely ignored productive efficiency. The conflicts between the development goals set by the central state and those by the local states, combined with unfair competition between the state sector and private sector, further deteriorated the power sector. The situation did not improve with the reform project that was enforced from 1997 to 1998. At the central level, there was no specific agency in charge of electricity affairs after the Ministry of Electric Industry (MEI) was dismantled and

supervisory authority was dispersed to various ministries. The colossal SPCC exploited its monopoly status and later became a target for reform. At the local level, the provincial governments nurtured power companies and secured the power supply for domestic use, contributing to the thriving local protectionism. The pre-2003 regulatory framework of the power sector suffered five major problems: a lack of a specific regulatory body along with dispersed authority; unclear goals and political interference; incomplete laws; inadequate regulatory capacity; and insufficient supervision over regulatory agencies (Gao 2002, 19-22). China's electricity reform stagnated.

Against this background, it was imperative that the central government undertake a new plan to restructure the industry, to preserve reform achievements, and to further deepen reform. The creation of the SERC was one of the core parts of this plan that the central government implemented to supplement the reshuffled industrial structure and to manage the new state-business relationship. Nonetheless, the ensuing development has not proceeded in the direction that the central state expected -- new predicaments emerged while former problems remained.

Going beyond the concerns about how to break up the monopoly in the utilities sector, China's power reform touches upon fundamental issues: has the state improved production efficiency and consumer welfare? Has the state created a market mechanism and ensured orderly competition? How has the role of the state transformed as the industry has been liberalized? In order to answer these questions, the state resolved to push the reform in three aspects simultaneously: restructuring the industry, developing the power market, and adopting a modern regulatory system. The new supervisory system consists of four directives: 1) the central government is responsible for macroeconomic management; 2) a specific regulatory agency is in charge of state regulation; 3) the enterprises operate autonomously; 4) the industrial association provides services and assistance to the companies.⁶⁴

Based on conclusions from the previous reform experience, then-Premier Zhu Rongji made a significant move from "reform from within" to "reform from the outside". Originally, reform projects were proposed by the lead agency of an industry. This model was abrogated and replaced with a designated group comprised of representatives from various government institutions. In October 2000, the General Office of the State Council issued the "Notice on Relevant Issues Concerning the Structural Reform of the Power Industry (*Guanyu dianli gongye tizhi gaige youguan wenti de tongzhi*)" (General Office of the State Council [2000] No. 69). The central state made it clear that the power reform should be led by the State Development Planning Commission (SDPC) and organized the Electricity Reform Coordination Leading

⁶⁴ These ideas were elaborated on by the Vice-Chairman of the SERC, Shao Bingren, in a speech delivered in the inaugural convention of the Guiyang Office of the SERC on December 5, 2005, http://www.serc.gov.cn/ywdd/200802/t20080220_6384.htm, accessed December 12, 2008.

Group (*dianli tizhi gaige xietiao lingdao xiaozu*) to draw up a new reform scheme. The director of the leading group was Zeng Peiyan, then-Chairman of the SDPC, and the deputy directors were Zhang Guobao, then-Vice Chairman of the SDPC, and Ou Xinqian, then-Vice Chairman of the SETC.⁶⁵ The first reform proposal was presented by the SDPC in May 2001. It was remarkable because it embodied the principle of separation of power plants and networks and mentioned the creation of an autonomous regulatory agency for the first time. The project was called “one plus six,” which suggested having one national grid corporation and six regional grid companies in the T&D sector and establishing several power companies to manage the power plants in the generation sector. Nevertheless, it was not regarded as a workable solution to breaking up the monopoly and eliminating local protectionism, so it was brushed aside.⁶⁶

After eight months of additional research on the reform experience in Western countries, the SDPC prepared a new reform scheme which was approved by the State Council in January 2002. In the draft, the SPCC would be spun off into two grid companies and five power firms. The central government would also create a ministry-level regulatory body to supervise the industry, but there was debate over the extent of the delegation of authority to this new regulator. There were three available options: first, the agency plays a comprehensive role in regulating all aspects of an industry, including the price-setting, safety, market management, and policy-making; however, this design involves many government entities and is therefore hard to implement. Second, the agency is responsible for monitoring market operation; however, it runs the risk of being a so-called flower-pot, a metaphor indicating the agency has no real power. Third, the agency is a transitional institution, focusing on market regulation first and then gradually extending regulation to other areas. The problem is that there is no clear schedule on when the agency should expand its coverage, resulting in a prolonged and indefinite process.⁶⁷ Obviously, each of these choices has its own difficulties and there were no visible resolutions yet. The central state eventually adopted the third idea and formed the SERC.

Beyond the concerns over its functions, a more essential question is how the construction of a regulatory body has changed the existing power structure among various government entities. Given that there had been no specific regulatory institution for five years (1998-2003) and that the regulatory authority was dispersed, the primary challenge faced by the new regulatory body

⁶⁵ The members were from the State Development Planning Commission, the State Economic and Trade Commission, the Ministry of Finance, the Legislative Affairs Office of the State Council, the State Council Office for Restructuring Economic System, the State Council Office for Restructuring Economic System, the State Power Corporation of China, and China Electricity Council.

⁶⁶ “Zhongguo dianli tizhi gaige beiwanglu (Memorandum on China’s Power Reform),” *Jingji Cankaobao (Economic Information Daily)*, October 30, 2002, <http://www.chinanews.com.cn/2002-12-30/26/258825.html>, accessed June 6, 2009.

⁶⁷ “Diangai fengyun (Unpredictability of the Power Reform),” *Caijing* 73 (December 5, 2002).

is the consolidation of authority. Generally speaking, while creating a new government institution, the first priority is to specify the authority backed by law and then to clarify the responsibilities. In contrast, in this case, the Chinese government decided the regulatory agency's responsibility first and allocated the necessary power accordingly. In view of this, the extent of a new regulatory agency's authority is determined by how much other ministries voluntarily relinquish, but not by how much it is needed. In his memoir, Li Peng, formerly one of China's top leaders and a veteran in the power industry, argues that power prices are key to successful power reform and that the SERC should not only regulate the power market but also be able to propose prices (Li 2005, 1326). Many experts echoed Li's suggestion and expected the SERC to do more than just be a market regulator. Ironically, although these critical ideas were reflected in the final version of the reform scheme, they were either ambiguously defined or unfeasible. Political struggles among various government entities prevailed over professional knowledge and directly resulted in SERC's incompetence.

II. The State Electricity Regulatory Commission: the Independent Regulatory Agency That Wasn't

Conventional wisdom concerning the power sector reform is that when the power supply is greater than demand, it creates a favorable environment for reform implementation. The Chinese government is, however, running a particular risk: an electricity surplus introduces oligopolistic competition within giant state power companies who would exploit their close ties with the state to ensure their business. Only by setting up a functional market mechanism accompanied by an effective regulatory agency can China's power reform escape the threat posed by state ownership. As a latecomer in following the global trend towards electricity reform, the Chinese state has identified strengths and weaknesses of various reform programs in other countries, including the U.S., the U.K., France, and Japan. In addition, China has received assistance from international organizations, such as the World Bank and Asian Development Bank, in designing an appropriate regulatory framework. China has thus realized the necessity of an independent regulatory agency (IRA) for monitoring the power industry and designated it as the core element of the reform agenda. Nonetheless, a new regulatory system should be designed and formed before dismantling the SPCC. Otherwise, it will be destined to become a figurehead. In fact, this claim describes the fundamental principle that a pre-existing, functioning state regulator is the key to reform success. This rule applies to the power sector and to all other industries.⁶⁸ Unfortunately, the scholars'

⁶⁸ "Dianjianhui xu libi chengwei "huaping" (The SERC Shall Try to Avoid Becoming the "Vase")," *Zhongguo Jingji Shibao (China Economic Times)*, September 6, 2002, http://www.shp.com.cn/skins/shp/zt/sdzt/dltzgg/web/mt_2002-12-11-14.htm, accessed April 23, 2009.

assessment was generally ignored in the actual planning of the reform.

The idea of formulating an IRA in the power sector first appeared in the mid-1990s. At that time, the MEI and World Bank jointly worked on a project to explore the development of a legal and regulatory framework for the electricity reform. After spending three years and holding several seminars, this research concluded in a collaborated report – *China: Power Sector Regulation in a Socialist Market Economy* – published on January 18, 1997, two days after the SPCC was formally established (Shao et al. 1997). In this report, the experts propose that “a national regulatory authority (hereinafter referred to as the “National Power Regulatory Commission”) should be created separate from other government institutions and should be responsible to the State Council” (48). It also suggests that institutional reform should be accompanied by a proposed legal framework supplementing regulatory system. The state shall supervise the power sector through a functional regulatory and legal system rather than directly managing the sector through administrative directives (53).

The reform implementation was designed as a four-stage process with the ultimate goal of establishing an IRA. According to this report (91-95), the national power regulatory commission shall be created as a separate administrative institution under the State Council in the fourth stage (2005-2007), while a continuing series of reform actions are put in place over a ten-year period (1996-2005). That is to say, the creation of an IRA is not achieved in one step but through a lengthy process which requires critical work to be done in advance, especially in regard to the legal framework and government restructuring. However, it seemed that the Chinese state implemented these proposed phases in reverse order and formed the SERC first while the passage of necessary legislation was left behind. Because the process of creating a new agency involves power redistribution and resource reallocation, the SERC has faced challenges from other government entities since its inception. The SERC was established in 2003 as the first IRA in China’s industrial sector. Its mission is to formulate regulatory rules for market operation, monitor the power markets, ensure fair competition, propose tariffs and adjustments, enforce safety standards, issue and manage business licenses, and supervise policy implementation.⁶⁹ The SERC performs two main tasks: 1) deepen electricity reform and 2) develop the market and regulate its operation. The SERC, however, bears a number of endogenous defects due to insufficient resources which prevent it from functioning effectively.

⁶⁹ For more information, see <http://www.serc.gov.cn/english/index.htm>

Status of the Institution

The SERC is a ministry-level administrative entity which is categorized as a “public service unit (PSU) directly under the State Council” (*guowuyuan zhishu shiye danwei*).⁷⁰ PSUs were created as public service providers, similar to non-profit organizations (World Bank 2005). Different from IRAs in the Western countries, the SERC was not created by law but by two statutes promulgated by the State Council: Regulations on Administration of the Establishment and Staffing of the Administrative Agencies of the State Council (*Guowuyuan xingzheng jigou shezhi he bianzhi guanli tiaoli*) (State Council [1997] No. 227) and Provisional Regulations on the Registration of Public Institutions (*Shiye danwei dengji guanli zhanxing tiaoli*) (State Council [1998] No. 252). Since the legislature was not involved, the SERC was created while its “three-fixed program” (*sanding fang’an*, meaning “fixing the staffing, the establishment, and the functions”) was approved by the executive body.⁷¹ The Chinese government made this disposition because the employees of the PSUs are not recognized as bureaucrats. Therefore, the creation of the SERC would not run against the downsizing movement in the administrative reform of 2003. In addition, this designation increases agency autonomy because the Chinese premier can decide the leadership without approval of the National People’s Congress (NPC) (Pearson 2007, 723). The SERC, however, suffers from being set as a PSU, which is regarded as inferior to traditional ministries in the State Council hierarchy. Although it was granted ministerial rank and delegated with enforcing regulatory functions, the new IRA does not possess the right to formulate rules or to make specific stipulations on punishing scofflaws. Moreover, the lack of legal basis makes it difficult for the IRA to clarify its responsibility and therefore to enforce regulation.⁷²

Legal Framework

The Electricity Law was promulgated in 1995 and put into effect in 1996 as a sound legal basis for power sector reform. In 2003, modifying the Electricity Law had been integrated into the NPC annual schedule, but nothing has been done. Today, this unsuitable law has significantly hindered the reform implementation, as the industry has already undergone two rounds of restructuring. Experts and scholars have consistently proposed to amend the law to make it

⁷⁰ The other three independent regulatory agencies (China Banking Regulatory Commission, China Insurance Regulatory Commission, and China Securities Regulatory Commission) are all public service units directly under the State Council as well.

⁷¹ See “Circular on Printing and Issuing the Provisions on the Function Disposition, Internal Structure and Staffing of the State Electric Power Regulatory Commission (*Guojia dianli jianguan weiyuanhui zhineng peizhi neishe jigou he ren yuan bianzhi guiding de tongzhi*)” (The General Office of the State Council [2003] No. 7).

⁷² “Jigou yu falü (The Institutions and Laws),” *Nanfang Zhoumo (Southern Weekend)*, January 9, 2003, <http://www.southcn.com/weekend/top/200301090011.htm>, accessed June 16, 2009.

applicable to the changing situation, but the central government obviously has no plans to do so in the near future. With the outdated stipulation, the SERC can only wield its authority according to the “Regulations on Electricity Regulation” (*Dianli jianguan tiaoli*) issued by the State Council in 2005.⁷³ Because the regulations are decrees made by the State Council, they are unable to empower the SERC to enforce its duties as statute laws. Moreover, the IRA is responsible for instituting the power markets while being delegated to supervise market operations. Only if the power markets are established and functioning can the SERC perform its regulatory duties. One dilemma under the current condition is that the SERC is not fully supported by an adequate legal framework to create a market system. Hence, with nothing substantive for the IRA to regulate, the SERC is not regarded as a functioning body.

Organization

According to its organizational chart, the SERC contains nine departments and supervises six regional bureaus and eleven municipal offices,⁷⁴ but an understaffing issue has afflicted the SERC since its inception. Although it specifies in the three-fixed programs that the number of staff can increase depending on practical needs in the future and that the employees of local branch offices are not included, the SERC commits only 98 staff members to perform all the tasks.⁷⁵ In sharp comparison there are more than one million employees in the State Grid Corporation (SGC), a single company. Moreover, a surprising fact about the SERC’s financial situation is that it was actually funded by the SGC during the first three years. Even though the financial source has changed to the Ministry of Finance (MOF), the SERC’s annual budget proposal still needs the approval of the NDRC.⁷⁶

In fact, the SERC has its own independent financial source because it can charge fees to issue business licenses and work permits for the power sector, responsibilities which were originally handled by the local governments. The local governments are reluctant to transfer authority to the SERC regional bureaus or city offices because of the loss of revenue. For example, occupational qualification certificates are now issued by the SERC, but the provincial and city governments’ responses were to either postpone the process of transferring over the necessary data or to conceal the information about this policy. As a result, power industry

⁷³ The Decree of the State Council [2005] No. 432.

⁷⁴ The nine departments are the discipline and inspection, general office, generation regulation, market regulation, personnel, policies and regulations, price and finance regulation, safety regulation, and transmission regulation. The six regional bureaus are Central, East, North, Northeast, Northwest, and South. The eleven city offices include Changsha, Chengdu, Fuzhou, Guiyang, Hangzhou, Jinan, Kunming, Lanzhou, Nanjing, Taiyuan, and Zhengzhou.

⁷⁵ Understaffing is also a problem for the SERC’s local offices. At the city level, there are only 15 staff members.

⁷⁶ “‘Kuilei’ dianjianhui (The ‘Puppet’ SERC),” *Zhongguo Qiyejia (China Entrepreneur)* 4 (2006).

workers continue to apply for the certificates from the local governments. Unfortunately, the SERC is unable to punish or even challenge local officials who are not cooperating because there are no clear regulations.

The SERC was not given sufficient support during the establishment process, particularly when it came to resource reallocation. Because of the tight budget and personnel shortage, the SERC has difficulties creating local branches and therefore must appeal to the industry for support. This predicament is reflected in the facilities that the SERC uses. For example, some of the city branches lease office space from the power groups. One of the city offices is located in a building owned by a state power group and another used to rent the offices owned by SGC. The regulator is beset by the fact that the regulated firms are its landlords. This unusual situation can also be found in personnel arrangements. The SERC requires a professional team, including experts on technology, economics, accounting, management, and law, to manage complex electricity affairs. Since it has no predecessor and the team needs to be ready to perform its assignments, the new IRA can only recruit staff from other government entities or the industry. At the central level, the majority of officials were transferred mainly from the SPCC and former Departments of Electricity of the SETC. At the local level, most staff members and technicians are not official employees but rather temporary transfers from the SOEs. Some of them are even still paid by their home work units and can decide to either stay in the SERC or return to their original positions at the completion of the transfer period.⁷⁷ Insufficient resources and close ties to the industry greatly impair the SERC's autonomy.

Leadership

The SERC's first Chairman was Chai Songyue, former governor of Zhejiang province. Chai had worked in the electricity industry for more than two decades until his promotion to the provincial leadership of Zhejiang province in 1986. He was considered to be the best candidate who met the requirements set by the central leadership because he has a background in electricity but does not have close ties to the industry (Bai and Yan 2005). When Chai took office in 2003, he showed his determination to reform the industry, develop the market, and strengthen regulation. Chai raised the critical point that state regulation should come together with the development of the market system in order to prevent chaos. However, this personnel appointment was by no means unquestionable -- Chai was 61 years old and people doubted he would be able to accomplish much with only four years left until the mandatory retirement age of 65. This suspicion turned out to be true because Chai retired in January 2007. Although Chai

⁷⁷ It is similar to the revolving-door phenomenon in the U.S. and *amakudari* in Japan. However, in the case of China's power sector, the direction of mobility is from the industry to government, and these employees are not high-level managers.

successfully enhanced the SERC's authority and elucidated its duties, the experiments in developing regional power markets were suspended and the struggles between the SERC and NDRC on price-setting remained. These difficult problems were left to his successor, You Quan.

You was the Deputy Secretary General of the State Council before becoming the Chairman of the SERC. His appointment reflected the central leadership's expectations for the IRA because as an experienced high-level official in the central government, You has a better understanding of how to communicate and coordinate effectively with other ministries in comparison with his predecessor Chai, who had been working at the local level generally.⁷⁸ During You's term, the liquidation of remaining generation assets (the so-called "Item 920" and "Item 647")⁷⁹ was completed, which marked a thorough separation of generation and network. The SERC made a significant contribution to the power reform agenda in the Eleventh Five-Year Plan with a focus on segregating core and auxiliary business and separating the transmission and distribution sectors. Despite these achievements, there was no progress, if not a regression, in market development. Moreover, the differing degrees of liberalization and regulatory development in the coal and electricity industries led to an unavoidable tension between the two sectors when the cost of coal soared after 2002 (Wang 2007). The escalating conflicts prompted the introduction of the "coal-electricity tariff automatic mechanism" (*meidian liandong jizhi*), but the problem has not been alleviated to date.⁸⁰ In the Eleventh NPC, You returned to the State Council and was appointed Executive Deputy Secretary-General. It was reported that the Organization Department of the Chinese Communist Party (ODCCP) asked a Vice-Chairman of the NDRC to take the position, but this candidate declined the offer for unknown reasons.⁸¹

In May 2008, Wang Xudong, former Minister of Information Industry and Vice-Minister of the newly-organized Ministry of Industry and Information Technology (for only one month), was designated to chair the SERC. This personnel appointment had three possible implications. First, Wang was selected because of his rich experience in market regulation during his tenure in the Ministry of Information Industry.⁸² However, to make an inference that Wang would be a capable leader of an IRA according to his performance as a minister is problematic because the job duties are very different. Second, Wang is a veteran in the local government and electronics and

⁷⁸ "Dianjianhui huan shuai (The Chairman of the SERC Changed)," *Shangwu Zhoukan (Business Watch)* 3 (2007).

⁷⁹ These are two chunks of the generation assets that were left to the State Grid Corporation in 2002.

⁸⁰ "Pojie meidian zhizheng, dianjia "zhun shichanghua" geng kexing (To Solve the Coal-Electricity Dilemma, Marketizing the Power Prices is a more Viable Way)," *Zhongguo Zhengquanbao (China Securities Journal)*, January 19, 2010, <http://www.chinanews.com.cn/ny/news/2010/01-19/2078882.shtml>, accessed January 20, 2010.

⁸¹ "Dianjianhui zhuxi You Quan ren guowuyuan changwu fumishuzhang (Chairman of the SERC, You Quan, was Appointed Executive Deputy Secretary-General of the State Council)" *Caijing Net*, March 27, 2008, <http://www.caijing.com.cn/2008-03-27/100054231.html>, accessed December 7, 2008.

⁸² "Wang Xudong jiebang dianjianhui (Wang Xudong Takes over the SERC)," *21 Shiji Jingji Baodao (21 Century Business Herald)*, May 6, 2008, http://www.21cbh.com/HTML/2008-5-6/HTML_2FTGPHT9A8F8.html, accessed June 18, 2009.

telecommunications industries but has no background in the power industry. Having been brought in as an outsider, Wang was expected to break down the serious problem of powerful vested interests and to enact regulations independently. On the flip side of the coin, this advantage may also turn into a weakness as he could be isolated from the industry and even the existing officials and unable to wield his full power. Third, Wang was already 62 years old and would retire in 3 years. This raised suspicions similar to those that people had for Chai about the extent to which Wang would be devoted to his job and would build his reputation.

Transitional Nature

When the Chinese government instituted a new regulatory mechanism in the power sector, it aimed to establish an IRA that would not only function effectively but also become a regulatory model for other industries. Nevertheless, with rising challenges in the energy sector such as soaring consumption, an impact on the environment, an inefficient decision-making process, and poor coordination, China realized it was imperative to ensure energy security and began to draft an energy law in early 2006. In the meanwhile, a government think-tank (the Development Research Center of the State Council) and the World Bank recommended in a research report that China set up a sector-wide regulatory body, a ministry, to encompass and oversee all industries in the energy sector (Berrah et al. 2007). With the expectation that the Ministry of Energy (MOE) would be (re)established, it is clear that the SERC would be dismantled or subsumed and its authority would be transferred to the new government body. A surprise to many, the creation of the MOE was not substantiated in the administrative reform of 2008. Instead, the Chinese government formed the National Energy Administration (NEA) to oversee the entire energy sector. This is because integrating relevant industries is too complicated and establishing a new ministry requires an infeasible number of staff. Thus, the central government decided to organize a high-level coordination institution first.⁸³ An energy super-ministry will be created eventually when the differences among the relevant industries are greatly reduced.⁸⁴ All in all, the dissolution of the SERC is envisioned.

The appointment of current Chairman Wang Xudong was also regarded as confirmation of the SERC's transitional nature. Since Wang is going to retire soon, this personnel arrangement will decrease the difficulty in accommodating all senior staff when the Ministry of Energy is created in the future. A similar arrangement exists in the newly-formed NEA, as the Directorship

⁸³ "Nengyuanbu zhan gezhi, youwang hounian chengli (The Creation of the Ministry of Energy was Temporarily Suspended and is Expected to be Carried Out Two Years Later)," *Xinxi Shibao (Information Times)*, March 13, 2008, http://informationtimes.dayoo.com/html/2008-03/13/content_112399082.htm, accessed June 22, 2009.

⁸⁴ "Gaijie jiang cong zhongyang zhubu tuizhi difang (Reform Will be Gradually Moving from the Central Government to the Local States)," *Guangzhou Ribao (Guangzhou Daily)*, March 12, 2008, http://gzdaily.dayoo.com/html/2008-03/12/content_135528.htm, accessed June 22, 2009.

is jointly held by the Vice-Chairman of the NDRC, Zhang Guobao, who was already 64 years old when he was appointed.⁸⁵

In short, while these endogenous flaws are viewed as major weaknesses of the SERC, they are not unsolvable. Since 2003, the central government has made great efforts to rectify the situation and empowered the SERC in order to meet current demands. Moreover, these defects have deep roots in exogenous factors which impose greater constraints on the SERC and lead to regulatory failure. Against the background of administrative reform and government downsizing, the formation process for the SERC inevitably involves power redistribution and resource reconfiguration and suffers from political struggles among the existing institutions. An IRA is, paradoxically, not independent but embedded in a broader government structure. Organizational autonomy does not help prevent political intervention within the government, nor does it strengthen agency performance. Regulatory dilemma in the power sector has causes that originate beyond the IRA itself. We shall explore the SERC's interaction with other government entities so that we are able to illustrate the paradox it faces.

III. A Fragmented Regulatory Framework: Dispersed Authority and Conflicting Interests

While launching the electricity reform, the Chinese government aimed to achieve various policy goals, including improving production safety and efficiency, developing infrastructure and expanding service coverage, promoting consumer welfare, increasing government revenue, advancing technology, and providing the industry with a viable market system. Nonetheless, creating an IRA is not sufficient to fulfill all these goals and it requires the involvement of other government entities. This necessary engagement has not fared in a cooperative way but in a disjointed manner instead. While multiple government bodies have been delegated authority to take charge of various duties, they have used the power to pursue their own interests and their enforcement has turned into political intervention in the regulation process. While the expectation is that the SERC will further push power reform and promote market competition, the SERC is in fact unable to avoid interference from other bureaucratic bodies. Possessing formal independence does not make the SERC a functional IRA because the regulatory authorities are scattered among different government entities, with each sharing a similar administrative rank but having different goals and interests. The regulatory framework of the

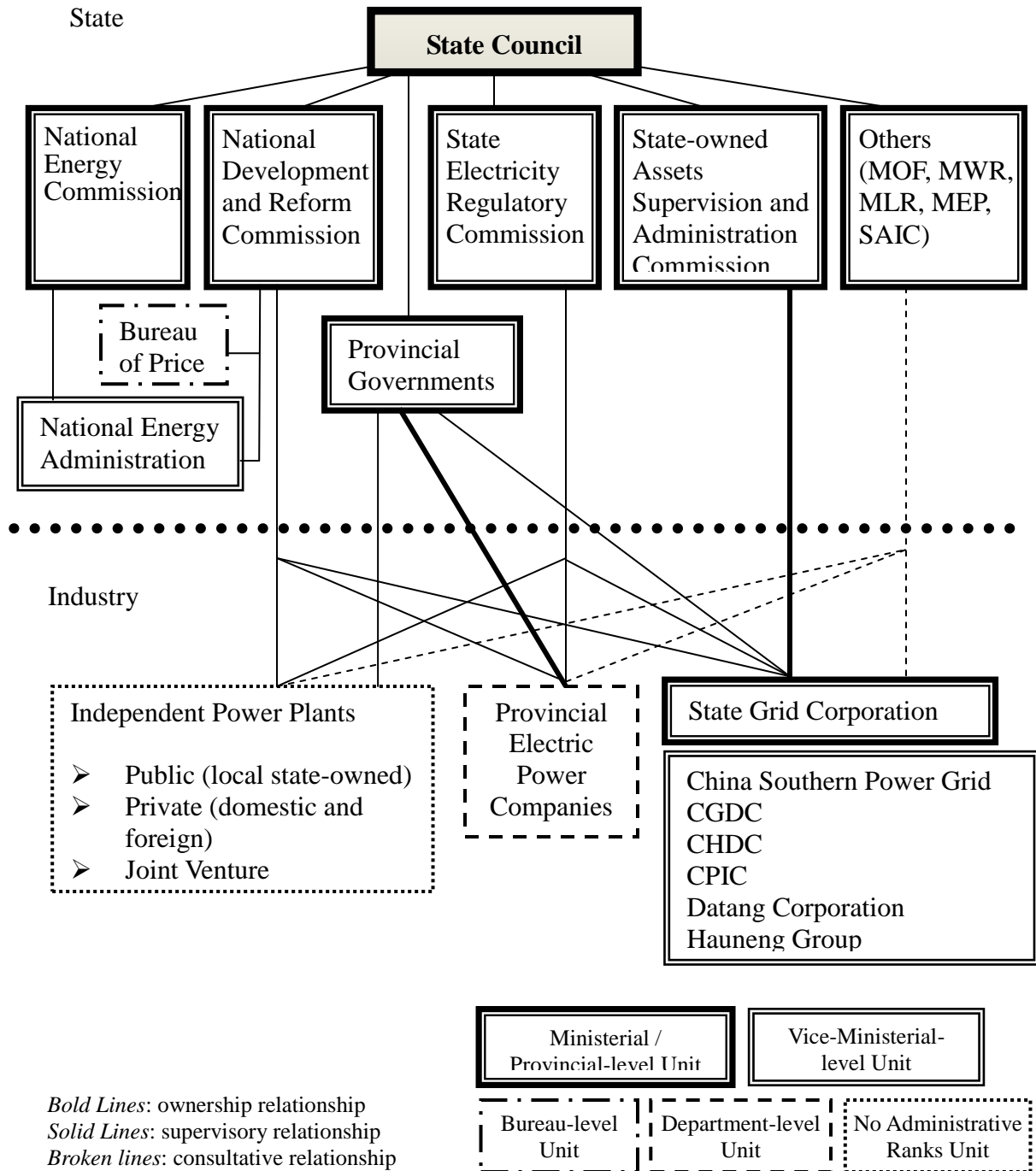
⁸⁵ “Wang Xudong churen dianjianhui zhuxi, wei chengli nengyuanbu pulu (Wang Xudong was Appointed the Chairman of the SERC, Paving the Way for the Creation of the Ministry of Energy),” *Xinxi Shibao (Information Times)*, May 2, 2008, http://informationtimes.dayoo.com/html/2008-05/02/content_182769.htm, accessed June 22, 2009; “Wang Xudong churen dianjianhui zhuxi (Wang Xudong Takes the Helm at the SERC),” *Caijing Net*, April 30, 2008, <http://www.caijing.com.cn/2008-04-30/100058997.html>, accessed December 6, 2008.

power sector therefore is not a holistic, unitary scheme but a hybrid, fragmented system.

From 1998 through 2003, the central government did not have a specific ministry in charge of electricity affairs, but they adopted a multi-agency supervisory structure in the power sector in which the SETC, SDPC, MOF, and ODCCP all had respective regulatory duties. The SETC was the major policy maker and managed the whole industry. The SDPC reviewed and approved investment projects and set the prices. The MOF was responsible for collecting taxes and monitoring financial affairs. The ODCCP controlled the personnel arrangements of the SPCC. In addition, although the SPCC was a SOE, it also performed regulatory functions such as electricity dispatch and technology development. This multi-agency structure was a temporary, expedient substitute since another round of reform was under way and an innovative regulatory system with an IRA was coming into being. The central leadership planned to integrate the regulatory authorities and to achieve professional regulation in tandem with industrial restructuring. The newly-established IRA, however, was created as an alternative to the SETC in the industry rather than as a competent state regulator. A fragmented regulatory structure remains (see Figure 4-1). In a multi-agency setting, the SERC's capability is seriously discredited while it regulates the electricity corporations. Accordingly, state regulation is beset by an intractable and hydra-headed bureaucracy. The current regulatory structure comprises of four major agencies: the NDRC, National Energy Commission (NEC), SASAC, and SERC. There are also other ministries whose business involves electricity affairs, including the MOF, MWR, MLR, MEP, and SAIC.

By identifying each agency's role and responsibilities in the current system, I illuminate the dispersion of the regulatory authority and how the individual agencies' goals and interests are at odds with each other. It is the interaction and contradiction among these institutions that leads to regulatory failure and reform stagnation. The problematic design of the supervisory mechanism has resulted in a regulatory paradox in the Chinese electricity industry: the creation of an IRA was supposed to improve regulatory effectiveness, but it failed to make regulation work. The SERC is a nominal IRA which only has a formal regulatory independence. Its practical regulatory independence is significantly less than anticipated by the reform plan. A detailed description of the involved institutions' jurisdictions shows how complex and segmented the scheme is. The discussion starts with the NDRC and then move to other critical institutions.

Figure 4-1: Current Supervisory Structure of China's Electricity Industry



The National Development and Reform Commission: A Miniature of the State Council

The NDRC, recast from the merging of the SDPC, State Council Office for the Restructuring the Economy, and parts of the SETC in 2003, is a mighty actor in the policy area. It makes policy recommendations for managing the national economy and troubleshooting. As a facilitator and coordinator in the State Council, the NDRC covers a wide range of administrative duties and has, more or less, interacted with all ministerial entities. While China moves toward a market economy, the NDRC has not weakened but, contradictorily, strengthened. It inherits two important ingredients for regulating the power sector from its institutional legacy -- setting the electricity prices and reviewing and approving the projects (*shenpi*). The price-setting authority is an effective tool for a state actor to develop a viable market and promote competition, while the examination and approval system is the main process through which a state regulator is able to enforce preventive regulation (Zhang 2005, 14). The NDRC, however, regards these two critical regulatory powers as policy apparatuses to adjust and balance economic aggregates for the nation, not for the power sector.

An evident case is the contradiction between the coal and electricity industries. Currently approximately 80 per cent of electricity is generated from coal, and about 55 per cent of coal use in China is for electricity. Therefore the cost of power generation is very sensitive to coal tariffs. In order to guard power companies against soaring coal prices, the central government designed the coal-electricity tariff automatic mechanism in 2004. This mechanism institutes a corresponding adjustment of power prices when coal prices increase more than 5 per cent for at least 6 months.⁸⁶ To date, it has been implemented twice, in May 2005 and June 2006 respectively. Nonetheless, because the Consumer Price Index was high in 2007, the NDRC decided to disregard the mechanism even though coal prices increased more than 10 per cent in 2007. To the NDRC, their first priority was to ensure macroeconomic stability and manage inflation. Hence, the surging costs and freeze in power prices led many power companies to heavy financial losses. In June 2008, the NDRC eventually issued an increase in power tariffs while the Consumer Price Index decreased slightly. In the meanwhile, the NDRC also set up a short-term regulation that capped coal prices at the level of June 19, 2008 until the end of that year, even though the coal prices were already liberalized.⁸⁷ Clearly, the price fluctuation did not reflect the market dynamics but state intervention.

However, this is not where the story ends. The tension between the upstream and

⁸⁶ See “Notice Concerning the Establishment of the Coal-Electricity Tariff Automatic Mechanism (*Guanyu jianli meidian jiage liandong jizhi de yijian de tongzhi*)” (NDRC [2004] No. 2909).

⁸⁷ In 1993, the coal prices were liberalized, except for power generation and agricultural use. When the NDRC announced in 2007 that it will no longer intervene in power coal price negotiations, it marked the full liberalization of coal prices.

downstream industries keeps escalating. In early 2009, the five major power generators were not able to reach a consensus on their contracts with domestic coal suppliers because of a 50 per cent increase in coal prices.⁸⁸ With the deadlock lasting for half a year and the peak season for power consumption approaching, the NDRC decided to step in to settle the problem and to coordinate the contract negotiations.⁸⁹ Yet the NDRC's influence is very limited when liberalized coal confronts planned electricity. Even the giant central SOE in the coal sector, Shenhua Group, holds the similar attitude that prices shall be decided by the market; Shenhua Group was unwilling to make a concession to its cousins of the state sector on this issue.⁹⁰ As the chief macroeconomic management agency, the NDRC is more concerned with the macroeconomic stability than with getting the prices right. Thus, the NDRC will distort the electricity prices, which have a significant influence on inflation, if necessary.⁹¹ In addition, the problems of heavy workloads and understaffing make the NDRC unable to perform careful reviews of the various electricity tariffs submitted by the local DRCs. Most of the time, the NDRC officials simply referred to records from previous years and made slight adjustments. Because of this, the local DRCs were motivated to suggest exaggerated prices in order to get higher tariffs approved.

In the meanwhile, the SERC has been absent from this long-term struggle between the coal and power industries because they lack the deciding authority over price-setting. The SERC was not granted discretion in price-setting at the beginning of the reform, but it always tried to expand its influence over this critical issue. For example, the SERC collaborated with the Asian Development Bank to initiate a research project and an international symposium on the topic of "price-setting mechanism and regulation" in 2003 and 2005 respectively. The final report made a strong recommendation for the SERC to be endowed with the price-setting authority due to its international experience.⁹² In the "Regulation on Electricity Power Supervision," Article 20 indicates that the SERC has the right to monitor the prices with the NDRC. This is regarded as a

⁸⁸ "Dang xiangdui longduan de mei zaoyu juegui longduan de dian (When Relatively Monopolized Coal Meets Absolutely Monopolized Electricity)," *Nanfengchuang (Window on the South Wind)* 13 (2009).

⁸⁹ "Fagaiwei qiujie dianmei jiangju, "meijia shangzhang 4%" cheng zuizhong xietiao jieguo (The NDRC Tries to Unlock the Power-Coal Deadlock, the 4% Increase in the Coal Price Might be a Result of the Final Coordination)," *21 Shiji Jingji Baodao (21 Century Business Herald)*, June 16, 2009, http://www.21cbh.com/HTML/2009-6-16/HTML_J7TK2E48SGIK.html, accessed June 24, 2009.

⁹⁰ "Duowei quanwei renshi zhichu: fagaiwei ganshe meidian jiangju jihu butai keneng (Several Authorities Pointed out That It Is Almost Impossible for the NDRC to Step in the Coal-power Deadlock)," *Nanfang Ribao (Southern Daily)*, June 18, 2009, http://epaper.nfdaily.cn/html/2009-06/18/content_6758098.htm, accessed June 24, 2009.

⁹¹ "Meidian heyi nanyi liandong? (Why Has the Coal-Electricity Tariff Automatic Mechanism been Difficult to Implement?)," *21 Shiji Jingji Baodao (21 Century Business Herald)*, September 8, 2009, http://www1.21cbh.com/HTML/2009-9-7/HTML_0EBRLG149O1N.html, accessed November 19, 2009.

⁹² "Dianjia shenpiquan ying fuyu dianjianhui (The Price-Setting Authority Should be Granted to the SERC)," *Nanfang Wan (South Net)*, January 25, 2005, <http://big5.southcn.com/gate/big5/www.southcn.com/finance/hot/200501260378.htm>, accessed September 10, 2009.

big step in expanding the SERC's authority, but in fact it is a general principle and brings no substantial changes.⁹³ In mid-2005, the State Commission Office for Public Sector Reform (*Zhongyang jigou bianzhi weiyuanhui bangongshi*) promulgated the "Circular Concerning Definite Division of Labor between the NDRC and SERC (*Guanyu mingque fagaiwei yu dianjianhui youguan zhize fengong de tongzhi*)" to further distinguish the respective duties of the NDRC and SERC, especially on the issue of pricing. The document makes it clear that the NDRC shall consult the SERC about the measures and policies related to various power tariffs. Practically, the role of the SERC is ignored by the NDRC in the price-setting process.

The importance of the price-setting authority is that liberalizing the prices is a core element of the power market. To be more specific, the SERC is not looking at seizing this authority from the NDRC but at transforming the mechanism by which the prices are decided on the market operations -- namely, the relationship between supply and demand. After all, as a state regulator, the SERC focuses on regulating the prices, not setting them. Before a market system could be well established, China's power sector needed a strong regulatory agency to supervise the industry. Ironically, the NDRC was regarded to be a better fit for the position than the SERC.

Another critical authority possessed by the NDRC is the exclusive right of reviewing and approving construction projects -- the major hurdle for market entry. With this authority in hand, the NDRC maps out the future development of the power sector with a focus on balancing the supply-demand relationship to support rapid, sustained economic growth. Currently, its foci are to increase the power supply by accelerating approvals of power plants and to improve transmission by expanding and upgrading the infrastructure. A structural contradiction, however, exists between the macroeconomic management and state regulation. In the generation sector, while the power shortages encouraged a significant increase in generation capacity, the number of construction projects to either establish new power plants or to expand existing ones grew rapidly and went beyond the NDRC's examination capacity. Accordingly, the NDRC has been unable to issue the approvals in a timely manner. The delays led to a pervasive phenomenon: power companies colluded with local governments to initiate the plans without consent from the NDRC. Moreover, the NDRC's decisions were mainly based on whether or not the projects fit with national development plans, so approved projects did not necessarily comply with regulations on water use, land use, and environmental protection. For example, a power plant that was approved by the NDRC and under construction might still be suspended by the MEP for its failure to meet certain environmental standards. As a result, the market entry process is full of inconsistencies and a fragmented regulatory structure leaves much room for the companies to manipulate.

⁹³ "Dianjianhui kuoquan (The SERC Expands Its Power)." *Shangwu Zhoukan (Business Watch)* 7 (2005).

With regard to the power networks, after successfully solving the issues of Item 920 and Item 647, the central government was ready to move to the next step of the reform schedule: separating the transmission and distribution sectors. Although the state has not taken any substantial action to reshuffle the power grid, a heated debate is brewing about the necessity of establishing an ultra high voltage (UHV) transmission system; that is, to build power plants close to coal mines and water resources in West China and then to transmit power to East China through long-distance UHV lines. The proponents propose that it lowers transportation costs and provides a more stable power supply, but the opponents contend that such an arrangement strengthens the grid companies' dominant position over the power plants, making it a step backward toward re-monopolization.⁹⁴ To the NDRC, the critical concern is how to maintain a stable supply-demand relationship in the power sector and therefore stabilize the macroeconomic environment. Clearly, the SERC has no right to comment on this issue and can only passively respond to the NDRC's decisions, even though the NDRC's decision may greatly contribute to stagnating market development. Lacking the authority to review and approve the investment projects has put the IRA in an inferior position to the macroeconomic manager and weakened the IRA's functions. Although the SERC has the right on issuing business licenses once the projects are complete, it is generally impossible to deny the applications due to the large investments and the urgent need for electricity.

In short, the expectation is that establishing a modern regulatory system with a new IRA as a key component will guarantee an appropriate environment for fair competition and prevent anti-competitive practices. State intervention and industrial policy dictates shall give way to market forces. Economic relations shall be managed by an IRA, ensuring that competitive forces enhance the healthy development of industry and distribute the fruits of this transformation to the masses. The existence of the NDRC, however, has disturbed the regulatory structure and degraded the SERC in two perspectives. First, it controls two of the most important authorities, the setting of prices and the review and approval of projects. Hence, the SERC is marginalized in the core regulatory business. Second, it misapplies the regulatory tools to manage the national economy. While further power reform yields to economic stability, the SERC finds itself deeply mired in the predicament that it will never be able to challenge the NDRC, *primus inter pares* in the State Council. According to a prominent expert and long-term veteran in the power industry, "the NDRC used to be the chief actor in pushing the reform, but as the reform project marches on, it turns out to be the subject to be reformed. This is the fundamental factor that disables the whole regulatory system in general and SERC in particular."

⁹⁴ This issue is further elaborated upon in the next chapter.

The National Energy Commission and National Energy Administration: The Top-level Coordinators

In the government restructuring of 2008, the National People's Congress approved two new institutions -- the National Energy Commission (NEC) and National Energy Administration (NEA). The NEC is expected to replace the National Energy Leading Group (NELG) as the top energy administration and be delegated with drafting the nation's energy development strategy, monitoring energy security, and deciding important issues. Its specific functions, organizational structure, and staffing were announced in January 2010. The NEC is directed by Premier Wen Jiabao with the deputy director Li Keqiang, who is Vice Premier. The committee members include 21 minister-level officials while the head of the NEC's office of general affairs is Zhang Ping, the Director of the NDRC.⁹⁵ The NEC was initially regarded as an effort to prepare for the MOE, which was rumored to be created in March 2008.⁹⁶ To date, there is no clear information about when or even whether or not the MOE will be established, even though the central government released the draft version of a long-awaited energy law in December 2007.

The NEA holds a vice-ministry status and is responsible for the NEC's daily activities. It incorporates the authorities of the Energy Bureau, the Office of NELG, and the Nuclear Power Administration of the Commission of Science, Technology, and Industry for National Defense, and handles the daily affairs of NEC (Downs 2008). The Director is Zhang Guobao, who is also the Deputy Director of the NDRC and the Deputy Director of the NEC General Office. This appointment is considered as enhancing the NEA's credibility. The mandate of the NEA includes administrating the industries, formulating standards, and composing energy plans and policies. The State Council distinguishes the functions between the NEC and NDRC on energy issues, identifying the former as the policy maker and the latter as the enforcing apparatus. Moreover, the NDRC is responsible for supervising the NEA and facilitating the integration of two functions: managing the energy sector and developing the national economy.

In the power sector, the central government planned to form a division of labor among the NEC and NEA, NDRC, and the SERC. The agencies would be in charge of policymaking, implementation, and regulation respectively.⁹⁷ According to the state's design, the troika arrangement avoids functional overlap and ensures checks and balances. It improves efficiency

⁹⁵ See "Notice Concerning the Creation of the National Energy Commission (*Guanyu chengli guojia nengyuan weiyuanhui de tongzhi*)" (General Office of the State Council [2010] No. 12).

⁹⁶ "Nengyuanwei chengli zai ji (The National Energy Commission is Created Soon)," *Jingji Guanchabao (Economic Observer)*, December 14, 2009, http://eeo.com.cn/Politics/beijing_news/2009/12/13/157999.shtml, accessed December 30, 2009.

⁹⁷ The Power Department of the NEA is responsible for planning thermal and nuclear power development, managing the national power network, and handling nuclear power station crisis management. See "Circular Concerning the Establishment of the National Energy Administration (*Guanyu yinfa 'guojia nengyuanju zhuyao zhize neishe jigou he renyuan bianzhi guiding' de tongzhi*)" (General Office of the State Council [2008] No. 98).

and benefits both investors and consumers.⁹⁸ Nevertheless, it is merely an ideal that has not yet been realized. The NEA is run under the control of the NDRC and is unable to operate independently while the NEC is thus far a hollow body. For example, the State Council has granted the power to adjust energy prices to the NEA so that price adjustments will be launched by the NDRC and NEA institutions in a collaborative manner. The NEA's decisions need to be examined by the NDRC and then submitted to the State Council for approval; the NDRC also needs to solicit opinions from the NEA when adjusting the prices. But this mechanism fails to work because the NEA continues to be regarded as a subordinate of the NDRC. The NEA has thus performed indifferently with the former NDRC's Energy Bureau. As a result, this design has strengthened the NDRC's position in the power sector. While using price-setting and project-reviewing authority to manage the national economy, the NDRC has strayed away from its mandate of micro-level regulation and lost its perspective by concerning itself with macro-level planning.

Currently, the NEA plays the role of both policymaker and executor. It is the designated agency which makes policy recommendations and enforces its suggestions. But the extent to which the NEA is able to fulfill its mandate depends on its relationship with the NDRC. To be more specific, it depends on where the interests of Zhang Guobao will lie when there are conflicting issues between the two institutions. Although the central government aims to allocate authority and clarify the supervisory structure in the power sector, the ambiguous delegation has complicated the system. When faced with a mighty NDRC, the SERC's endeavor to obtain more discretion proves to be fragile. Moreover the NEA is very much a transitional institution, one which was established as a temporary alternative after an unsuccessful attempt to create an MOE in 2008.

Due to the limits of its authority and autonomy, the NEA has trouble effectively managing and coordinating China's energy sector. It lacks real power to carry out many of its assigned tasks as responsibilities for the energy sector are dispersed among a number of ministries. Despite the NEA's desire to play a larger role in reforming the electricity, oil, and coal sectors, almost all the issues related to the reform of these industries come back to price reform and market access, areas over which the NEA has little control. Escalating conflicts are unavoidable as the degrees of liberalization vary in different energy industries. If the NEA fails, calls for a MOE or a comprehensive supervisory mechanism will reemerge and another bureaucratic reshuffle will occur. The foreseeable future of NEA therefore indicates the transitional nature of the SERC, which is expected to be merged into an integrated coherent regulatory structure

⁹⁸ "Dianli guanli tizhi tansuo qianxing (Probing and Advancing the Managerial Structure in the Power Sector)," *Zhongguo Dianlibao (China Electric Power News)*, October 29, 2008, http://www.cepn.sp.com.cn/bwtj/200810/t20081029_261551.htm, accessed July 10, 2009.

overseeing the whole energy sector. Consequently, the credibility of the SERC is seriously weakened, as is the current regulatory system in the power sector.

State-owned Assets Supervision and Administration Commission: The State Assets Watchdog

After implementing the policy of “grasp the big corporations; get rid of the small ones” (*zhuada fangxiao*)⁹⁹ and separating the business functions from the government, the central government established the SASAC to manage the ownership and operation of the remaining SOEs. Most of these are giant corporations in the strategic industries. The SASAC is a “special organization directly under the State Council” (*guowuyuan zhishu teshe jigou*) and is both owner and manager of the central SOEs. The central government delegates the SASAC to supervise the state assets in the public interest, to adopt the modern enterprise system with clear property rights, and to promote corporate governance. In reality, the SASAC performs a dual role of ally and adversary to the SOEs: it seeks to improve the public firms’ performance and increase the value of the SOEs on the one hand, and oversees the managerial stratum to prevent illegal acts or wrongdoing on the other (Naughton 2008).

In the power industry, the five leading power generators (the Big Five)¹⁰⁰, which in total generate more than 50 per cent of China’s electricity per year, and the two major grid companies, which have an oligarchic monopoly in their regions, are all central SOEs under the SASAC’s purview. The conflicts of interest between the SASAC and SERC are thus unavoidable in two respects. First, the SASAC focuses on maximizing the corporations’ market value and profitability. The head of the SASAC, Li Rongrong, has long held the view that in order to further integrate state assets and optimize resource utilization, the number of central firms must be reduced to well under 100 within the next few years. To make this so, only the most efficient companies should survive. That is to say, the current five power generators will again be reorganized into two or three leading conglomerates, and only those which sit atop the industry will stay. The strategy of building national champions motivates the firms to expand their operations and to be more willing to comply with the rules and oversight of the SASAC.

Moreover, since state firms, especially these in the monopoly industries, have been very profitable over the last several years, the SASAC reached an agreement with the MOF to set up a “state capital management budget” (*Guoyou ziben jingying yusuan zhidu*) in May 2006 to compel the central SOEs to turn over their profits to their putative owner, the Chinese government (Naughton 2006). According to the relevant regulations, all central SOEs were categorized into three groups, with remittance rates for after-tax profits set at zero, five, and ten

⁹⁹ This is a major economic strategy of the SOE reform that was set in the Fifteenth National Party Congress of the Chinese Communist Party in 1997.

¹⁰⁰ CGDC, CHDC, CPIC, Datang, and Huaneng.

per cent, respectively. Some of the profit remittance goes to the SASAC as funds for implementing its reform agenda. The power enterprises fell in the first group and were to remit 10 per cent of their profits.¹⁰¹ Hence, a simple formula is the greater the power companies' profits, the greater the dividend for the SASAC. This hierarchical relationship between the SASAC and the central SOEs inevitably stymies state regulation and obstructs market development in the power sector in particular and in the Chinese industrial sector in general. The SASAC is concerned with the power companies' economic performance, so it provides extensive support to the subordinates. The SERC is unable to enforce its mandate comprehensively while facing the regulated firms under the bureaucratic umbrella of its colleagues in the central government.

Second, the SASAC together with the ODCCP wields power over personnel appointments in the central SOEs. They propose that leadership rotation could foster healthy competition and prevent any one firm from dominating the market.¹⁰² In addition, it enhances the checks and balances among the top officials and promotes communication between the relevant industries. For instance, Yun Gongmin, former vice-chairman of the Shenhua Group, was appointed general manager of CHDC. This personnel designation is intended to facilitate cooperation between the coal and electricity industries. In the power sector, a series of leadership rotations started with the promotion of Wang Binghua, former general manager of CPIC, to chairman of the newly-created State Nuclear Power Technology Corporation. Lu Qizhou, former deputy general manager of the SGC, took over the position Wang left in May 2007. Later in June 2008, a more comprehensive rotation was initiated when Li Xiaopeng, the former general manager of Huaneng, transferred to Shanxi province as vice governor. Cao Peixi, former general manager of CHDC, was selected as Li's successor, and his position was filled by Yun Gongmin. Li Qingkui was assigned as the deputy general manager of CHDC while Qiao Baoping, a former high-level official of CPIC, replaced him as the deputy general manager of CGDC. Although the Datang is the only power group that was absent from this round, its general manager, Zhai Ruoyu, is already 64 years old and is expected to retire soon.¹⁰³

¹⁰¹ The CSPG is the only exception, which is currently exempted because of its diversified equity. See "Notice on the State Capital Management Budget (*Guanyu shixing guoyou ziben jingying yusuan de yijian*)" (State Council [2007] No. 26); "Management Methods for Receiving the State Capital Income of Central Enterprises (*Zhongyang qiye guoyou ziben shouyi shouqu guanli banfa*)" (MOF [2007] No. 309); and "Yangqi 'guoyou ziben shouyi' shouqu chu xingui (New Regulations Appear for Central Enterprise "State Capital Income" Receipts and Outlays)", *Caijing Net*, December 17, 2007, <http://www.caijing.com.cn/newcn/home/cjcx/2007-12-17/42098.shtml>, accessed July 7, 2009.

¹⁰² Job rotation is happening across the industries, various levels of government institutions, and party systems. That is to say, a general manager of a central SOE may be assigned a new job in another firm in the same industry or a different industry, or in the central or local governments, or in a party organization.

¹⁰³ "Wuda dianli jituan renshi da huanban (The Personnel Reshuffle in the Big Five Power Groups)," *Caijing Net*, June 17, 2008, <http://www.caijing.com.cn/2008-06-17/100070070.html>, accessed July 7, 2009.

A new wave of personnel adjustments is presumed to be forthcoming. Nonetheless, the high-level personnel reshuffling may not be beneficial to developing a competitive electricity market – one of the major tasks of the SERC. Rather, it may actually result in an oligopolistic market in which the Big Five form a coalition to repel their common rivals, including the local SOEs and private investors. While these top executives and general managers of the Big Five all have diverse experience working in various departments such as the MEI, MOE, SETC, and SPCC, job rotation in fact helps them develop closer ties with the central government and other state firms. It is clear that leadership rotation among a few companies results in coalition instead of competition and is detrimental to market development, but the SERC is unable to correct this misbehavior.

Strictly speaking, the SASAC does not share regulatory authority nor does it directly meddle in the regulatory process. However, as the largest owner of power assets and as the government agency parallel to the SERC, the SASAC actually has a greater impact on the industry than SERC. The state regulator has been unable to eliminate the predominance of the Big Five or guarantee the local SOEs and IPPs fair competition. The Big Five are inclined to seek help from their bureaucratic supervisors and intentionally ignore the SERC's directives. When they have a conflict over electricity dispatch with power grids, they appeal to the SASAC for a resolution rather than ask the SERC to referee. The Big Five are also in a better position to negotiate with power grids compared to other companies because both groups are subordinates of the SASAC. This is a non-traditional type of business lobbying, one by which the firms appeal to its bureaucratic superiors rather than elected politicians to escape state regulation. How this route works is further elaborated in the next chapter.

Other Ministries: The Intervening Forces

Although the abovementioned government entities possess significant regulatory power, some other government institutions are involved in the regulatory process because of their responsibilities. A distinct feature is that these government bodies do not directly intervene in regulatory affairs, nor do they share the authority to monitoring the power sector. However, their institutional mandates and organizational goals overlap with the functions of regulatory agencies and sometimes play a deciding role in state regulation. Among them, the Ministry of Environmental Protection (MEP) is a prominent case. Although the MEP is a relatively new bureaucracy, having been upgraded to a full ministry in March 2008 from the State Environmental Protection Administration, it strives to show its influence in electricity affairs in two ways: through the environmental impact evaluation of proposed construction projects and through mandatory controls over sulfur dioxide emissions, especially by coal-fired power plants.

If a project breaches environmental regulations, the MEP suspends the approval of the environmental impact assessment, leading to a halt in construction.¹⁰⁴ If a power plant is noncompliant with sulfur dioxide emission standards, the MEP imposes a large fine or a temporary shutdown.

The Ministry of Land Resources (MLR) is responsible for planning, administering, protecting, and utilizing natural resources, including land, mineral, and marine. It conducts the land-use reviews of both grid and power plant projects and determines whether the land acquisition was appropriate. Approval from the MLR is a critical component of construction projects. The Ministry of Water Resources (MWR) handles water-related affairs and has greater influence in dam and hydropower issues, ranging from management to safety of power stations. The role of the MOF has changed as the power sector has been liberalized. With private investment entering the industry, the MOF focuses on taxation and works with the SASAC on collecting the after-tax profits from the central SOEs. The State Administration for Industry and Commerce (SAIC) is the major government body in charge of market regulation. Since the major task of the SERC is to monitor the market operation, the SAIC cooperates with the SERC to draft relative rules and supervise the transactions.

While examining state regulation in the electricity industry, we must also pay attention to the ministries, whose business more or less overlaps with the SERC. If these government agencies collaborate with the state regulator on certain issues, we may expect the IRA to function more effectively. Otherwise, the inconsistencies among these agencies would waste administrative resources and lead to coordination problems in which the regulated firms either face too much intervention or exploit the grey zones where it is unclear which agencies are in charge. Unfortunately, China's power sector is undergoing the latter now.

Local Governments: The Profit Seekers

Because of the close relationship between power reform and economic development, local governments are very sensitive to reform implementation. They play the role of gatekeeper in the regulatory process and are also responsible for conducting preliminary reviews of the power companies' construction plans. The respective departments examine the projects in detail to determine whether each part of the construction plan meets standards. Once the projects pass the

¹⁰⁴ The former State Environmental Protection Administration proclaimed three lists of illegal projects that violated environmental regulations and issued a suspension notice to these projects. See "Huanbaozongju tongbao de weifa kaigong xiangmu (Report on Projects Illegally Starting Construction Work)," January 18, 2005; "Shangwei qidong de zhongdian huodian tuoliu xiangmu mingdan (List of Coal-fired Power Plants Without Desulfurization Projects)," January 27, 2007; and "Huanbaozongju tongbao 1123 yi yanzhong huanjing weifa xiangmu (Report on Projects Seriously Violating Environmental Protection Regulations with the Total amount of RMB 112.3 Billion Investment)," January 10, 2007. These three documents are available at <http://www.zhb.gov.cn/>.

review, they are forwarded to a higher authority, the NDRC, for final approval. In addition, local governments collect the necessary information from the industry and assess the previous years' records to propose various tariffs. Then, the price schemes are submitted to the NDRC for final approval. To the central government, cooperation with the local bureaucracy is crucial to effective state regulation since local authorities have a greater ability to monitor the industry and possess better information about the companies.

Nonetheless, unlike the central ministries which focus on their mandates and goals, the local governments look more at the advantages they can garner from the restructured electricity industry. While they are a part of the supervisory framework, the local governments do not necessarily follow the central directives but tend to side with the power companies due to their own economic considerations. To facilitate the establishment of power plants offers the localities a double advantage. First, an abundant and stable power supply is very attractive for investment, especially to high energy-consuming industries, which is critical to economic growth. Second, new power plants not only create more employment but also become a source of local revenue. As a result, local governments help the power companies to lobby the central authority or to evade state monitoring, gaining revenues in return. Some local governments even take advantage of this opportunity to invest in the power stations through the provincial SASACs. Their own projects may enjoy preferential policies and easily get green-lighted while others remain mired in lengthy bureaucratic procedures. The local governments become rent seekers and a hindrance to state regulation. In the next chapter, we examine the cases of local state power companies which describe how the local governments contribute to regulatory capture.

Leading Group and Working Group: The Informal Regulators

One characteristic of China's government system further disturbs the state regulatory system and causes the deterioration of the IRA's autonomy in the power sector. Informal organizations led by high-level government officials occupy a specific and significant position in the policy-making process. They are formed to mediate controversial issues, coordinate efforts, and construct a consensus across the ministries. There are two types of informal working teams: 'leading group' (*lingdao xiaozu*) and 'working group' (*gongzuo xiaozu*). The leading groups are chaired by top leadership, usually the Premier or Vice-Premier, and are responsible for deciding the general guidelines for the issues that have widespread and profound influence. The working groups are headed by the ministers and account for concrete concerns in certain industries. Both of them are organized on an on-call basis and have no full-time staff.¹⁰⁵

¹⁰⁵ For example, the Central Finance and Economic Leading Group (CFELG) was established in 1980 to replace the Finance and Economic Commission of the State Council. It oversees the China Securities Regulatory Commission in the securities industry and financial market. The CFELG is now headed by Premier Wen Jiabao and the director

There are two informal organizations which have influence in China's electricity reform. In 2002, the Reform in Electricity, Telecommunications, and Civil Aviation Leading Group (RETCLG) was created to take charge of reform strategies in three monopoly industries. The RETCLG consists of three working groups: the Working Group on Electricity Reform (WGER), the Working Group on Telecommunications Reform (WGTR), and the Working Group on Civil Aviation Reform (WGCAR). The WGER, however, has a different personnel arrangement and organizational composition from the WGTR and WGCAR.¹⁰⁶ It seems that the WGER is not parallel to but a half-step higher than the other two working groups. The WGER was headed by then-Chairman of the NDRC and also the Vice Director of the RETCLG, Ma Kai. Then-Chairman of the SERC, Chai Songyue, was merely one of the two deputy heads of the WGER. Another was Li Rongrong, the Chairman of the SASAC. Moreover, the members of WGER include the general managers of central SOEs (both grid companies and power groups), which is not the case in the other two working groups. The Director of the RETCLG was the late Vice Premier Huang Ju. Both the then-Chairman of the Civil Aviation Administration of China, Yang Yuanyuan, and the then-Minister of Information Industry, Wang Xudong, were Vice Directors of RETCLG. They also chaired the WGCAR and WGTR respectively.

In other words, the general managers of China Air, China Southern Airlines, and China Eastern Airlines in the civil aviation industry and those of China Mobile, China Unicom, and China Telecom in the telecommunications industry are not sitting on the WGCAR's and WGTR's meetings respectively. Such arrangements make the state-owned power enterprises share equal status with other ministries, especially the SERC, in the group and provide a conduit through which to directly negotiate with governmental officials. Also, it indicates that the private power companies are in an inferior position when competing with their public counterparts in an underdeveloped market.

Another informal organization is the National Energy Leading Group (NELG) which is responsible for coordinating energy affairs. It was created in 2005 on the grounds that the Energy Bureau of the NDRC was unable to perform its tasks well due to its low administrative rank. It was impossible for a bureau-level institution to enforce the policies, coordinate the conflicts among the energy industries, and deal with higher-level officials such as the ministers, vice-ministers, and SOE managers, who enjoy (vice) minister-level treatment. Consequently, the Energy Bureau failed to settle the controversies in the energy sector, especially those between the

of the general office is Zhu Zhixin, the Vice Chairman of the NDRC.

¹⁰⁶ See "Notice Concerning the Adjustments of Personnel and Organization in the Reform in the Electricity, Telecommunications, and Civil Aviation Leading Group and Working Group (*Guanyu tiaozheng dianli dianxin minhang tizhi gaige lingdao xiaozu he gongzuo xiaozu zucheng renyuan ji danwei de tongzhi*)," (The General Office of the State Council [2003] No. 46).

upstream and downstream industries. A prominent case is the long-term struggle over the coal prices between the coal and electricity industries. In view of this, the central government decided to institute the NELG as a higher-level advisory and coordination body to strengthen energy management comprehensively.

The NELG was chaired by Premier Wen Jiabao with two Vice-Chairmen, the late Vice Premier Huang Ju and then-Vice Premier Zeng Peiyan. The directorship of the General Office was jointly held by then-Chairman of the NDRC Ma Kai; the membership included 13 ministers.¹⁰⁷ The goal was to fortify the capabilities of decision-making and to integrate the opinions expressed in various industries. Another major task was to draft a law on energy. The General Office of the NELG was a part of the NDRC and had 24 staff members, but it was not a standing organization and had no administrative power. The division of labor between the General Office and the Energy Bureau was that the former was in charge of researching critical issues in energy development and the latter managed the whole sector.¹⁰⁸ However, the NELG did not function effectively and was replaced by the newly-established NEC.¹⁰⁹

When the State Meets the Party

Since China remains a socialist state, one condition that requires special attention is the role of the party in economic affairs. The IRAs in China encounter a regulatory predicament in which they are embedded in not only the administrative framework but also the party system. The ODCCP has the authority to make the personnel arrangements of high-level positions in the party, government entities, and SOEs. In a government institution or SOE, the appointments of top officials are integrated in a dual-track system, which means these officials are appointed with corresponding party titles by the ODCCP. In addition, the ODCCP uses job rotation as a way to cultivate talents or to accommodate retiring staff, so personnel exchange (transfer/promotion/demotion) is very frequent between the government institutions and SOEs. As a result, the IRAs find themselves in the awkward situation of having their officials transferred to and from the regulated companies. The SERC is not an exception. For example, Wang Yeping, the former General Manager of the China Southern Power Grid, was appointed Vice Chairman of the SERC in 2006. Another Vice Chairman of the SERC, Wang Yumin, was former deputy general manager of SPCC and president of the China Guangdong Nuclear Power

¹⁰⁷ See “Decision Concerning the Establishment of the National Energy Leading Group (*Guanyu chengli guojia nengyuan lingdao xiaozu de jue ding*),” (The State Council [2005] No. 14).

¹⁰⁸ “Hangshi nengyuan zhanlue, nengyuan ban maishou jixing 150 tian (Compact the Energy Policy, the Office of the NELG Has Marched Forward for 150 Days)” *Diyi Caijing Ribao (First Finance and Economics Daily)*, October 31, 2005, <http://finance.sina.com.cn/g/20051031/02382078652.shtml>, accessed December 8, 2008.

¹⁰⁹ See “Notice Concerning the Establishment of Coordination Institutions (*Guanyu yishi xietiao jigou shezhi de tongzhi*),” (The State Council [2008] No. 13).

Group, which is also a central SOE. This method of personnel arrangement is a double-edged sword. It may help the SERC function more effectively because the officials who have experience in the industry can easily uncover problems. However, it may also weaken regulatory effectiveness since the officials run a higher risk of succumbing to lobbying pressure from their former colleagues.

Moreover, administrative rank (*xingzheng jibie*) empowers the SOEs' managers to challenge the IRAs. It is a unique system in China and refers to the status and treatment an official receives from a particular position. Each government post has an equivalent administrative rank. This system works in two forms. Firstly, the government officials enjoy the benefits they receive from the highest positions they hold; they are allowed to keep their rank if they take a new job or retire. This is a problem inherited from the planned economy. In the state sector, we can easily find a former top government official maintaining the same remuneration while assuming a new position in an SOE. In the power sector, the first general manager of SPCC, Shi Dazhen, was the last Minister of Electric Power and kept the minister-level (*zhengbu ji*) title and benefits.

Secondly, high-level positions in the SOEs are assigned administrative ranks when the SOEs are being established. According to their levels in the SOEs, these managers are parallel to the corresponding levels of government officials and receive the same treatment. For instance, the general manager of SGC has minister-level rank, and the managers of the five power groups have vice minister-level ranks (*fubu ji*). The SERC suffers from this system because they cannot deal with these central SOEs as subordinates or regulated entities but as parallel institutions in terms of administrative ranks. The SERC officials are unable to request information from the managers of the state power companies who carry higher administrative rank. Furthermore, the SOEs can exploit their special administrative status and close connections to lobby a government official for their own interests, behaving as interest groups in the Western sense. On the extreme, the separation of government and enterprise will never be successful as long as the enterprises are state-owned (Wang et al., 2004: 52-52). Compared to the SOEs' easy access, private investors experience difficulty in expressing their concerns to the relevant institutions in the central government, so a functioning market and fair competition is never possible.

While the Chinese government did reform the power industry and adopt a modern regulatory system, the whole process did not advance as expected. The struggles among government entities over power redistribution and resource reallocation during the creation of a new IRA have predestined a compromised design of the SERC. The SERC therefore suffers both endogenous flaws and exogenous defects. With incomplete discretion and limited material support, it is a nominal IRA embedded in a fragmented regulatory system. Due to its institutional constraints, the SERC has failed to perform its tasks and inevitably been captured by the industry.

While facing pervasive state ownership and rampant business involvement, the SERC's efforts to build up a market system and ensure fair competition are in vain. The power companies with diverse ownership embark on various types of lobbying, to which we are now turning in the next chapter.

CHAPTER FIVE

BUSINESS INVOLVEMENT AND INDIRECT REGULATORY CAPTURE

The power enterprises with different ownership structures in China take a non-traditional approach to lobbying: the industry communicates with the government institutions instead of elected politicians to meddle in the policy-making process and attempt to procure regulatory favors. Because of the fragmented supervisory system and discrepancies among the interests of various government agencies, the state-owned power corporations have greater power over government and are able to exploit their unique status to influence government decisions in their favor. The power grids strengthen their monopoly and obstruct the reform process. The five leading power generators (the Big Five) develop into oligopolies and smother a competitive market in its cradle. Their central state-owned enterprise (SOE) status provides them with an exclusive channel to negotiate with the policy makers. At the local level, the power firms owned by the provincial or city governments are sheltered by their bureaucratic supervisors so they can expand their business without abiding by the central regulations. They collude with local officials to evade state monitoring from the central government and to gain profit. In return, the local governments earn revenues and secure constant power supply for local use.

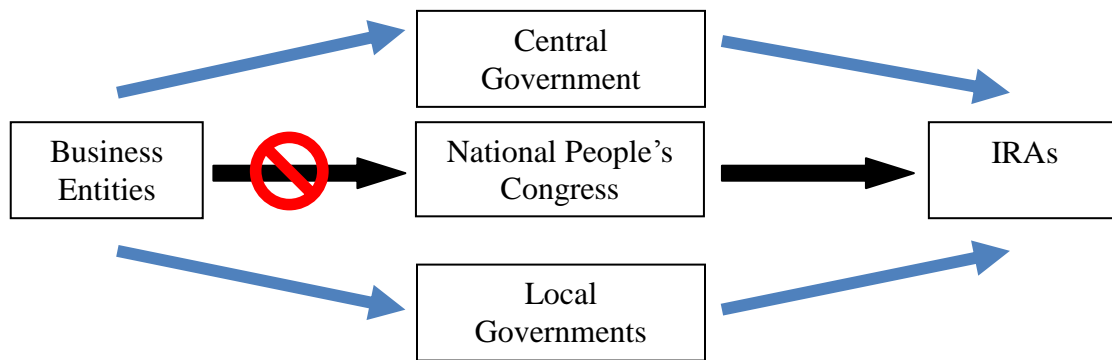
At this point, the decentralized local governments coexist with the local SOEs in a for-profit structure. The distinctive interaction between the Chinese state - at the central and local levels - and SOEs illustrates a different picture of lobbying compared to that in the Western countries. Being incapable of supervising these powerful public interest groups reveals the SERC's insufficient capacity. Moreover, while the Chinese state liberalizes the generation sector and promotes competition, the independent power producers (IPPs), including domestic, joint venture, and foreign, are in an inferior position and exposed to a rigorous environment. Due to unfair competition and a dysfunctional state regulator, they do not envision a bright future for their investment but rather dreary days. It is not a win-win scenario for the IPPs and the Big Five, but a zero-sum game in which the sole private agents are engulfed by their ambitious public rivals. The efforts the Chinese state has made to break up the monopoly has not resulted in a growing market accompanied by a viable IRA as expected; rather it has led to the unanticipated outcome of an oligopolistic market and regulatory capture.

I. A Detour Toward Business Lobbying

While we are familiar with business lobbying as a phenomenon in which a group or an organization attempts to influence legislatures or policy makers to achieve a policy outcome in

favor of its objectives, lobbying to promote business in China presents a different picture because of China’s authoritarian political regime and so-called “socialist market economic system.” In the Chinese industrial sector, two characteristics of business lobbying are displayed. First, the business groups do not target Congress but focus on the administrative bureaucracy instead. Although the Chinese parliament, the National People’s Congress (NPC), has been quite active in the past few years in reviewing legislation before it is put to a vote, the NPC has not proved to be a well-functioning legislative body. The delegates have limited power and can only follow the Chinese Communist Party’s (CCP’s) guidance. The business groups therefore have no incentives to persuade the representatives to propose or pass preferential legislation. Instead they look for assistance from relevant government officials who draft the measures and laws. The enterprises endeavor to deliver their concerns directly to the various levels of administration through different channels instead of sponsoring elected politicians to capture the IRAs (see Figure 5-1).

Figure 5-1: Business Lobbying and Regulatory Capture in China



Second, the state sector is not withering but growing, and the SOEs are reinvigorated and becoming the mightiest interest groups in the country. While the prevailing understanding of Chinese economic development is that the private sector has risen at the expense of the state sector, the reality is that the state sector has remained substantial in the national economy. After clarifying property rights and hardening budget constraints, the SOEs, especially the central SOEs, have developed into independent, dominant economic actors in their respective sectors. With extensive connections to the government, these firms are viewed as China’s most powerful lobbying organizations. Consequently, it is more difficult for the central state to regulate its own subordinates than private firms.

As a core element of the unique Chinese economic system, the central SOEs are not only business organizations but policy apparatuses as well by which the state is able to manage the national economy. Most of them are leading companies in the utility and pillar industries, such as

electricity, telecommunications, and oil, and carry policy responsibilities set by their superior authority. This quasi-governmental status grants them the structural power to perform certain administrative tasks. These SOEs, however, not only loyally follow the orders but also contribute to forming or strengthening policies beneficial to them. Since electricity is one of the public utilities, power companies cannot operate only for profit and should work closely with the governments to ensure the provision of reliable service. In China, the central state-owned power enterprises take advantage of this obligation and exploit their structural power to fortify monopolistic interests. They emphasize their policy-induced losses and appeal to their bureaucratic supervisors for help. When the state power firms encounter difficulties, the State-owned Assets Supervision and Administration Commission (SASAC), as both owner and manager, conveys their concerns to the relevant government agencies, including the SERC, on behalf of the enterprises and try to obtain solutions for them. It is the most influential supporter of and chief lobbyist for the central SOEs. In addition, the central SOEs intervene in the policy-making process through personal ties. Those managers who had previously worked in the government or party exploit their extensive social networks to approach the policy makers.

In the meanwhile, the equivalent administrative ranks that accompany the positions in the SOEs also passively obstruct regulatory enforcement. When the regulatory agency sent staff to conduct an inspection or collect data in the SOEs, the firms identified these officials' administrative ranks. If they were low-level or mid-level officials, they would not be able to accomplish their tasks because these officials were regarded as not high-ranking enough to make such requests. The SOE managers would refuse to cooperate with low-level regulation-enforcers if they thought it was unnecessary and inappropriate. The SOE managers identify the government officials in terms of administrative ranks, not their responsibilities. For example, the Big Five refused to provide more detailed information and delayed responses to SERC's requests when the low-level officials reviewed their safety statements.

The local SOEs, either wholly-owned or controlled by the local governments, demonstrate a different mode of business lobbying. The responsible local officials help them to negotiate with the central bureaucracy for project approvals or favorable policy outcomes. For example, due to the large capital costs and relatively long construction period, whether or not power plant projects can be initiated as scheduled is very important to the investors -- in this case, the local governments. Any construction delay can translate into significantly higher financial charges. After receiving the project applications, the provincial development and reform commission (PDRC) would take charge and communicate with the NDRC to get the green light. If these were major, large-scale projects, even the provincial party secretaries or governors would express their concerns to the central officials, sometimes going so far as to make a special trip to Beijing to do

so. In the meanwhile, the power companies would start construction without formal admissions from the NDRC. Under the protective umbrella of the local bureaucracy, the local SOEs enjoy the privilege of doing business even though some of their activities run against central directives.

When facing the economic actors in the state sector, the IRA is not directly captured by the interest groups. However they are restrained from enforcing the rules by their colleagues in the government or by institutional constraints. The reality is not only reflected in the SOEs' superiority but also in the private investors' inferiority. In the electricity industry, the IPPs have no reliable conduits to let their voices be heard, let alone become part of the policy-making process. Although the China Electricity Council (CEC), the business association of the power sector, is expected to serve as a bridge between the state and industry and provide service to the enterprises, the CEC's close relationship with the state sector makes it unclear as to what extent the organization is able to speak for the private entrepreneurs. For example, the incumbent Chairman of the CEC, Liu Zhenya, is also the incumbent general manager of the State Grid Corporation. Currently, eleven out of the thirteen vice chairpersons are general managers of the central SOEs, including the two grid firms and the Big Five. Another two vice chairpersons are the presidents of the two largest local state-owned power enterprises. The private sector has no presence in the board of trustees.¹¹⁰ When the policies were disadvantageous and unpredictable and access to approach the state was limited, the domestic small-scale IPPs were forced to shut down. At the same time, foreign investors faced increased vulnerability and scaled back their investments. Being unable to foster a robust private sector frustrates the development of power markets and facilitates regulatory capture.

II. The State Grid Corporation and Its Subsidiaries: Intransigent Subordinates

The State Grid Corporation (SGC) was formed in December 2002 on the basis of the SPCC's power grid assets, which cover 26 administrative regions, or 88 per cent of the national territory.¹¹¹ Total assets consisting of 1860 billion yuan (about 273 billion USD) and more than 1.5 million employees make the SGC the largest public-utility enterprise in the world and lift it to the rank of 15th in the Fortune Global 500 in 2009.¹¹² The first general manager, Zhao Xizheng, was a former Vice Minister of Electricity Industry and then a deputy general manager of SPCC. When Zhao retired and became the Chairman of the CEC in October 2004, Liu Zhenya, former

¹¹⁰ The information is available at the CEC's website. See <http://english.cec.org.cn/>.

¹¹¹ The power grids in the rest of the five provinces were distributed to the China Southern Power Grid, a former branch of the SPCC in southern China. Although the Chinese government established two grid companies to experiment with competition in the transmission sector, apparently there is no competition between them with their respective markets.

¹¹² See http://money.cnn.com/magazines/fortune/global500/2009/full_list/.

head of the electricity system in Shandong province and later a deputy general manager of SPCC as well, was appointed Zhao's successor to lead the company.¹¹³ Because of the nature of its business and being the target in the next stage of the reform, the SGC has been at the center of controversy since its inception. The debate about the SGC lies in two issues: the establishment of power markets and the development of power infrastructure.

The central government planned to further dissolve the SGC in order to separate the transmission and distribution sectors and to introduce competition in the latter. The ultimate goal of China's power reform is to "release both ends and regulate the middle" (*fangkai liangtou, jianguan zhongjian*). The idea refers to developing a competitive market in the generation sector for the power stations, developing a competitive market in the distribution sector for the end-users, and monitoring the transmission sector, which remains a natural monopoly. In order to facilitate the creation of a three-level electricity market (national, regional, and provincial), the central government set up five regional power grid companies under the SGC. According to the reform scheme, the regional power markets would be established by the end of the Tenth Five-Year Plan period (2001-2005), but the reality is frustrating to the state because there has been little advancement. The regional power grids have become mere figureheads and have made no contribution to market development. While the SGC manages the cross-regional power exchange and administers the grand project of "send western electricity east" (*xidian dongsong*), the provincial power grids supervise the provincial networks. In between, the regional power grids can at best coordinate dispatching the cross-provincial electricity exchange, which is a relatively small amount because of the similar supply-demand relations across the provinces in a certain area. For example, there is little power exchange in Northeast China since each province is generally self-sufficient. Therefore, the Northeast Power Grid has had difficulty promoting the regional power market because of the low number of transactions. In fact, the Northeast Electricity Transaction Center was created in 2006 but has been unable to start operations thus far. Moreover, the regional power grids have only consultative, not leadership or supervisory, relationships with the provincial power grids, so they do not have substantial authority over the latter. It has resulted in a situation in which the provincial power grids directly report to the SGC, bypassing the regional power grids. Obviously, the current organizational structure of the SGC is unable to facilitate the development of a designed three-level power market and the central government has no way to rectify it.

Moreover, the SGC has had its own interpretation of China's electricity reform. While supporting the goal of breaking up the monopoly in power generation, the SGC suggests that it is

¹¹³ Interestingly, in the SPCC, Liu ranked the highest among the deputy general managers, which indicates that his position was higher than Zhao's.

not necessary to separate the transmission and distribution sectors; at least, it is not the first priority in the current reform because of the characteristics of the natural monopoly and economies of scale. The SGC argues that the nationwide power shortage has its deep roots in underdeveloped infrastructure so the state should commit to improving the power grid instead of further separating it. In the past two decades, China has to a large extent solved the problem of capital shortage in the generation sector and greatly expanded the generating capacity, but, paradoxically, what ensued was neither relief to power consumers nor a power surplus. Instead, an unforeseen problem has emerged - the limited capability of existing power transmission became a great barrier and the corresponding grid expansion plans lagged far behind. Underdeveloped infrastructure has long been regarded as the Achilles' heel that led to an imbalanced relationship between production and consumption, resulting in the large-scale power shortage in 2004. If the grid system could handle the amount the power plants generated, power shortages in China would be a seasonal phenomenon rather than a structural one. With enough generating capacity, China could satisfy its consumers if the infrastructure allowed it. In 2008, the worst snowstorm in five decades ravaged most of Central and Southern China, which further deteriorated the conditions. It destroyed the existing grids and severely delayed the development schedules.

Among the expansion projects proposed by the SGC, the establishment of the ultra-high voltage (UHV) lines is undoubtedly the most controversial issue and inspires fierce debate. The UHV system has the advantages of delivering large quantities of power over long distances with little energy loss and of reducing transportation costs and land requirements.¹¹⁴ Once established, it would greatly improve transmission efficiency and alleviate the nationwide power shortage. Restricted by the existing power grids, many coal-fired power plants are built close to cities in the coastal provinces, where there is high electricity consumption. While transporting coal from inland to the coastal plants, the power companies bear high transportation and storage costs and face the unavoidable problems of spending more time, suffering more losses, and producing higher pollution along the way. In addition, arranging transportation involves coordinating with various government departments (especially the Ministry of Railways) and competing with other power firms, which further complicates the issue.

¹¹⁴ China's first UHV grid project laid foundation in August 2006 and completed in January 2009. The total investment is 5.7 billion yuan (US \$713 million). The system wanders for 653.8 kilometers and transmits power produced in Shanxi province, China's largest coal base, to Henan province and then to Hubei province. The second UHV grid, the "Sichuan – Shanghai" project, started construction in December 2007 and is expected to be completed in 2011. The grid system is about 2,000 kilometers long and the total investment is 18 billion yuan (US\$ 2.6 billion). The third UHV grid, built by the CSPG to connect Yunnan province to Guangdong province, was initiated in December 2006 and finished in May 2009. It is the first UHV grid in the world to have a direct current of 800kV and has a total length of 1417 kilometers.

As a new technology, the UHV system contributes to lowering the power firms' costs and reducing their environmental burden. Nonetheless, the SERC officials believe that this project will result in a squandering of resources and the re-monopolization of the power industry because the UHV system will fortify the grid companies' already dominant positions over the power plants (SERC 2007).¹¹⁵ Moreover, there is neither a precedent for such an extensive system nor any ongoing construction projects for it in any other countries because the technology has not matured yet. Only Japan and Russia have built UHV grids for short-distance transmission. Since the transmission lines extend hundreds of miles, its vulnerability is expected to be a problem. If part of the grid is damaged, the whole system breaks down leading to a large-scale blackout.¹¹⁶ In order to obtain approval for this project, the SGC leadership has utilized all possible occasions for propaganda and visited the relevant ministries to seek support. Oddly enough, as the primary potential victims of a monopolized power grid, the Big Five are absent from the debate. None of their general managers have expressed opinions, positive or negative. A possible explanation is that they are part of the state sector as well and it would not be appropriate to comment. However, they most likely choose to be silent because they cannot predict how much their own companies will benefit from this project. Despite the SERC's opposition, the NDRC approved the SGC's proposals, which aim to feed the demand of energy-thirsty East China by establishing power plants in and transmitting power from energy-rich West China. It is clear that national development projects prevail over regulatory concerns because the SERC lacks authority over the examination of construction projects.

Although the SGC carries the responsibility to assist the SERC in implementing further reform, its organizational design and development projects are at odds with the reform schedule. When the developing regional power markets encounter difficulties, the central government has to make a corresponding adaptation to either amend the reform scheme or restructure the SGC. Otherwise, the reform process stalls. But the SERC has no authority to fix this problem and can only passively wait till the NDRC or SASAC steps in. Unfortunately, to date, there has been no sign that either government institution will take action. The bottleneck of market development places the SERC in an awkward situation because there is no object of regulation. It also exposes the reality that the IRA has not acquired practical regulatory independence to enforce its rules. Moreover, the SGC shows how a central SOE aggressively transfers its preference into the policy-making process and successfully harvests the resulting precious fruit. It appealed directly

¹¹⁵ "Dianjianhui yinhui biaotai "tegaoya" zhizheng (The SERC Expressed an Implicit Attitude toward the UHV Debate)," *Beijing Shangbao (Beijing Business Daily)*, April 6, 2007, <http://finance.people.com.cn/BIG5/1038/59942/59949/5574382.html>, accessed July 25, 2009.

¹¹⁶ "Tegaoya dianwang jianshe – Gaige haishi longduan (The Establishment of the UHV Grid – Reform or Monopoly?)," *Nanfengchuang (Window on the South Wind)* 10 (2009).

to the NDRC and made the case for the significance of the UHV system to national economic development. The SGC emphasized how the project is beneficial to the whole country and successfully marginalized the SERC, causing the SERC's voice to be generally ignored. The SERC is in a weak position against such a grand goal and therefore cannot argue that this system is detrimental to a not-yet-developed power market.

Controversy over the role of the SGC in China's power reform delves into another critical issue – favoritism, which makes fair and open competition impossible. If the power plants were supported by the power grids, explicitly or implicitly, they would enjoy the benefits of monopoly and obstruct fair competition. The Shandong Luneng Group (hereafter Luneng) is a good case with which to show how the nepotistic relationship frustrates the SERC's efforts to create a competitive power market. Luneng was established in 1995 as a subsidiary enterprise of Shandong Electric Power Group (a subsidiary firm of SPCC) and operated businesses in the tertiary sector (*sanchan duoqing qiye*). In 1999, Luneng received about 10 per cent of total generating capacity in Shandong from its parent company and joined in power generation. When the central government dismantled the SPCC and distributed its assets to the Big Five in 2002, Luneng was not included. Later, Luneng was transformed into an employee stock ownership plan (ESOP) firm, and most shareholders were employees of the Shandong Electric Power Corporation (SEPC), a wholly-owned subsidiary of SGC. ESOP was launched in the 1980s in order to alleviate the capital shortage in the power sector, but ESOP enterprises were relatively small and scattered. However, the tide turned as the industry restructured in 2002. The local electric power groups in Shandong, Jiangsu, Guizhou, Sichuan, Ningxia, and Yunnan formed a very complex network between the post-reform provincial grid corporations and ESOP enterprises. In 2003, the NDRC, SASAC, and MOF jointly issued an emergency notice to restrain the employees of power grids from investing in the power generators, but they have had little effect because detailed regulations were not formulated.¹¹⁷

Due to its close relationship with the provincial grid company, Luneng has enjoyed the privilege of having more utilization hours for its power equipment. For example, when the national average annual utilization hours decreased in 2005, Luneng's hours of operation increased 6.1 per cent and reached 5902 hours of operation. This number was higher than that of CGDC, CHDC, and CPIC. When Liu Zhenya, former head of the Shandong Electric Power Group and chairman of Luneng, was promoted to be the general manager of the SGC, Luneng welcomed a "golden opportunity" to expand. In addition, former deputy general manager of the SGC, Chen Jinxing, had also worked at Shandong for a long period and was Liu's deputy both in

¹¹⁷ See "Emergency Notice on Suspending the Employees in the Electricity Industry for Investing in the Power Enterprises (*Zhanting dianli xitong zhigong touzi dianli qiye de jinji tongzhi*)," (SASAC [2003] No. 37).

the Shandong Electric Power Group and Luneng. Moreover, Luneng owns many large-scale power plants in southeastern Shanxi province, which is the supply end of the UHV system. According to the SGC's report, the UHV grid system will be further developed into a network with two vertical and two horizontal major lines covering all of China at the early stage of the Twelfth Five Year Plan.¹¹⁸ Interestingly, the sites of Luneng's power plants that are under construction or preparing to begin construction correspond to the SGC's plan.¹¹⁹

In 2006, two private companies, Guoyuan United Corporation and Shouda Energy Group, purchased a 91.6 per cent stake for a 3.73 billion yuan investment, and gained absolute control over Luneng. This transaction has stirred extensive controversy because the total assets of Luneng were up to 73.8 billion yuan in the end of 2005, yet it was sold to two little-known firms, with presumably good connections, at rock-bottom prices.¹²⁰ Since this deal apparently violated the regulations and involved the loss of state assets, the SASAC made the decision to order the SEPC to buy Luneng back. In 2008, the SEPC acquired a 95.47 per cent stake in Luneng for 8.3 billion yuan from Guoyuan United Corporation and Shouda Energy Group.¹²¹ Paradoxically, the successful renationalization of Luneng led to the reintegration of generation and transmission, going against the goal of the first stage of electricity reform. Hence, the SASAC again asked the SEPC to sell out the power generation assets of Luneng with Huaneng eventually winning the bid.¹²²

Unfortunately, Luneng is not an exceptional case and we can also find the cronyistic ESOP firms in other provinces. Established in 2000, Guizhou Jinyuan Group (hereafter Jinyuan) was an ESOP enterprise and had a generating capacity of 9 million KW by the end of 2006, more than 50 per cent of the total generating capacity in Guizhou province. Between 2002 and 2005, its chairman was Xiang Dehong and the vice chairman was Kuang Zhonghe. They were the former general manager and deputy general manager of Guizhou Electric Power Corporation, a wholly-owned subsidiary of the CSPG. There were many other high-level managers of the Guizhou Electric Power Corporation who either had stocks or held joint positions in Jinyuan. Due to the close ties to the provincial grid company, Jinyuan soon became the largest power generator in Guizhou, surpassing two major central SOEs, CHDC and CGDC. As one of the largest local enterprises, Jinyuan was offered extensive support by the provincial government through

¹¹⁸ "Jieshi "zhongguo tegaoya jianshe" wuda xuanyi (Explain Five Major Questions about the Construction of the UHV Grid System)," *Xinhua Net*, January 16, 2009, http://news.xinhuanet.com/fortune/2009-01/16/content_10670630.htm, accessed July 28, 2009.

¹¹⁹ These power plants are located in provinces such as Heilongjiang, Xinjiang, Ningxia, Shanxi, and Yunnan.

¹²⁰ "Shui de luneng (Whose Luneng)?" *Caijing* 176 (January 6, 2007).

¹²¹ "Shandongdianli 83 yi shouhui luneng jituan (Shandong Electric Power Corporation Spent 8.3 Billion Yuan Buying Back Luneng)," *Caijing Net*, February 22, 2008,

<http://www.caijing.com.cn/newcn/todayspecx/business/2008-02-22/49256.shtml>, accessed August 27, 2009.

¹²² "Luneng chaishou qimu (The Spin-off and Sale of Luneng was Initiated)," *Caijing* 225 (November 24, 2008).

preferential policies. For example, the PDRC assigned higher prices to Jinyuan's power plants and helped Jinyuan to obtain project approvals from the NDRC. At the same time, the Guizhou provincial SASAC was Jinyuan's shareholder and owned a 2 per cent stake.¹²³

Although the case of Jinyuan is different from the case of Luneng in that it has no direct connections to the CSPG, it describes a complex network between the provincial power grid and the ESOP enterprises and how these two parties work together to monopolize the local power market and ignore regulations. To some extent, Jinyuan is more like an extension of the provincial grid company than an IPP. The central government eventually took action and put Xiang Dehong under "double designation" (*shuanggui*) in 2008.¹²⁴ Nearly 20 other officials were detained by the CCP's Discipline and Inspection Committee for alleged misconduct tied to the loss of state assets. Jinyuan was eventually asked to clean up the shares owned by power employees and to make a deal with the CPIC.¹²⁵

Although the separation of generation and transmission is viewed as the major achievement of the Chinese electricity reform, the restructuring is neither comprehensive nor exhaustive. The power grids remain in control of the generation assets. Those directly owned by the SGC were a financial resource for future development and were cleaned up step-by-step. Nonetheless, the power plants controlled by the local power grids through the ESOP enterprises are an inherent problem from the previous stage and a potential threat to market development. These ESOP firms are closely connected to the power grids and able to obtain more utilization hours. When there is a power surplus, they always secure their business and are the last to suffer the cutoff of production. This favoritism between two actors is delicate and ambiguous so that the SERC has difficulty clarifying and eradicating it. Moreover, the SERC has not been delegated the authority to investigate the ESOP firms if the companies have not conducted illegal transactions.

With the current state of the power grids, the diffusion of regulatory authority leads to a paradox in which the IRA has no power to fulfill its task of directing the reform process. Meanwhile, other government institutions possessing regulatory power do not actively wield their discretion to ensure state regulation, but to passively incorporate regulatory affairs into their daily routine, such as reviewing prices. Moreover, the regulated firms executed an artful strategy to focus on how their expansion project will contribute to the national economy and to avoid

¹²³ "“Jinyuan” diguo diaocha (Investigation on the “Jinyuan” Empire),” *Caijing* 115 (September 5, 2004).

¹²⁴ “Double designation” (*shuanggui*) is a form of discipline and detention for violations of party discipline in the CCP. It requires the CCP party member under investigation to submit to questioning at a designated place and time. For more information, see Flora Sapio (2008).

¹²⁵ “Guizhou zuida fadian jituan dongshizhang bei “shuanggui” (The President of the Largest Power Generators in Guizhou was Put under ‘Shuanggui’),” *Caijing Net*, September 3, 2008, <http://www.caijing.com.cn/2008-09-03/110010179.html>, accessed August 29, 2009; “Zhongdiantou wancheng dui jinyuan jituan shougou (CPIC Completed the Purchase of Jinyuan),” *Caijing Net*, December 29, 2008, <http://www.caijing.com.cn/2008-12-29/110043139.html>, accessed August 29, 2009.

mentioning how their dominance would be further strengthened. Directly appealing to the administrative bodies eased their request through and bypassed the regulator's examination. Lacking complete regulatory independence in practice presents the SERC with a rough road ahead. Similar struggles also plague the frail IRA in its interactions with the Big Five, influential interest groups in power generation.

III. The Big Five: Different Expansion Paths Leading to Oligopoly

Two Tales of Business Expansion

When putting its power station in Jingtai County, Gansu province, into operation in December 2009, the total installed generating capacity of Datang reached over 100 million kilowatts (KW),¹²⁶ more than 10 per cent of the national generating capacity.¹²⁷ While it had a total installed generating capacity of 50 million KW in 2006, Datang has expanded the scale by 100 per cent, or 50 million KW, in the past three years and become the largest generation company in Asia.¹²⁸ In 2002 when the Chinese government dissolved the SPCC and distributed the SPCC's generation assets to the Big Five, Datang's generating capacity was only 24 million KW and most of its power plants were located in North and Northeast China, including Gansu, Shaanxi, Hebei, Heilongjiang, and Jilin. However, during China's severe nationwide power shortage between 2003 and 2005, Datang grabbed the opportunity to extend westward and southward into Southwestern and Central China. It invested large amounts of capital to establish new power plants with large-scale generators.¹²⁹ Currently, its generation assets are distributed in 26 administrative regions.

Nonetheless, the rapid expansion has brought about two problems: unfulfillment of the examination and approval process of the construction projects and the firm's high debt/asset ratio. The NDRC, MLR, MWR, and State Environmental Protection Administration (SEPA) announced jointly in July 2005 a list of projects with seriously regulatory violations; two of them were grand projects belonging to Datang and had a total generation capacity of 3600 MW.¹³⁰ In

¹²⁶ See Datang's website: <http://www.china-cdt.com>.

¹²⁷ As of the end of 2009, China has an installed generating capacity of 874 million KW. "2009 nian quanguo dianli gongye tongji kuaibao (National Power Industry Statistical Report 2009)," available at the China Electricity Council's website at <http://www.cec.org.cn/html/news/2010/1/7/201017181258065.html>, accessed January 15, 2010.

¹²⁸ "Datang jituan chengwei yazhou zuida fadian gongsi (Datang Group Has Become the Largest Power Generation Company in Asia)," *Jingji Cankaobao* (Economic Information Daily), June 30, 2009, http://big5.xinhuanet.com/gate/big5/news.xinhuanet.com/energy/2009-06/30/content_11626516.htm, accessed September 10, 2009.

¹²⁹ They are referred to the 300-MW and above generating units.

¹³⁰ See "First Proclamation of the Suspension of Illegal Power Plant Projects (*Diyipi gonggao tingzhi jianshe de weigui dianzhan xiangmu*)," (NDRC [2005 No. 38]).

2005 and 2007 respectively, the SEPA issued another three lists of power plants which had failed to fulfill the environmental assessment guidelines and make improvements or had been illegally initiated.¹³¹ Datang had eight power stations on the lists. In 2007, the Datang International Power Generation Corporation, Datang's subsidiary company, was even imposed with a "regional permit restriction" because it had not closed down its small coal-fired power plants by the deadline. This restriction means that the SEPA has suspended approvals for all of the company's construction projects in a certain region until the violations are rectified.¹³² In addition, because of the high capital costs of new power station projects, Datang inevitably has a high debt to assets ratio. Datang's debt to assets ratio has continued to rise from 77.06 per cent in 2006 to 86.65 per cent in 2008. Since the power plants do not yield profits until they are put into operation, Datang is facing severe repayment pressure and high financial risk while expanding its business.

Different from Datang, Huaneng adopts mergers and acquisitions (M&A) strategies for expansion. In the past few years, Huaneng has bought stakes in the local state-owned power companies (e.g., a 25 per cent stake in the Shenzheng Energy Group for 2.4 billion yuan in 2003, a 24 per cent stake in the Guangdong Yuedian Group for 10 billion yuan in 2006, a 6 billion yuan investment in Luneng of Shandong) or increased their stake to control the companies (e.g., from a 22 per cent to a 80 per cent stake in the Hainan-based Haikou Thermal Power Corporation for 415 million yuan in 2003, and from a 20 to a 51 per cent stake in the Inner Mongolia-based Northern United Power Corporation in 2005). Moreover, Huaneng also follows the government's "going out" policy to invest abroad. In 2003, Huaneng successfully beat several contenders, including Sime Barby of Hong Kong and Australia's own Origin Energy and the Stanwell Corporation, to obtain a 50 per cent share of OzGen for 227 million USD. OzGen, an Australian subsidiary of Boston-based InterGen, has an approximately 50 per cent stake in two 840-megawatt power plants in Queensland. This transaction made Huaneng the first Chinese power enterprise to acquire major overseas power generation assets in an industrialized country. In 2008, Huaneng reached an agreement with Temasek Holdings to buy a 100 per cent share of the Singapore-based Tuas Power for \$3 billion, the largest overseas purchase by a Chinese power firm. Tuas Power possesses 2.67 million KW of electricity generating capacity in Singapore and about 25 per cent market share. Through its subsidiary company, Lancang River Hydropower Company, Huaneng invested in the largest hydropower build-operate-transfer project in Myanmar in 2006. The power stations are connected to the power grid in Yunnan province and supply electricity back to China, which serves as a part of China's "send western electricity east"

¹³¹ See ft. 48 in Chapter 4.

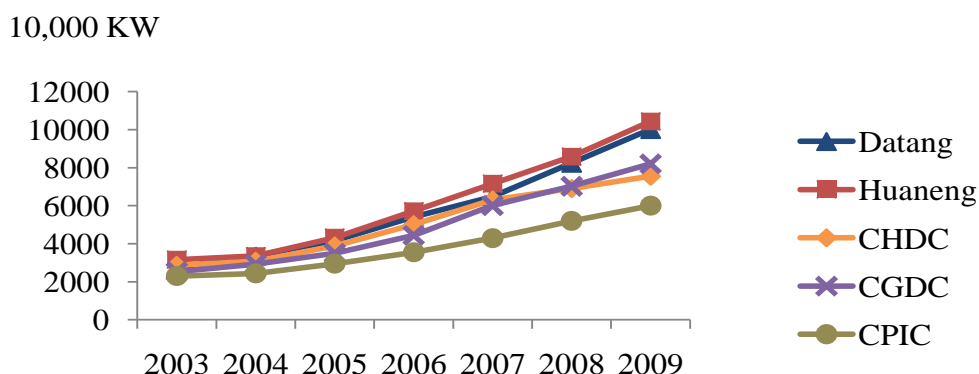
¹³² Datang was not the only exception and in fact Huaneng, CGDC, and CHDC all had restrictions imposed on their construction projects because of their failure to meet SEPA requirements.

project.

Not limited to the electricity industry, Huaneng also reaches out to the coal industry to secure a stable supply of raw materials. In 2006, Huaneng Energy and Communications Holding Company, a subsidiary firm controlled by Huaneng, partnered with Huating Coal Group to invest 1.2 billion yuan in the Daliu coal project in Gansu province. As the conflict between the coal and electricity industries escalated, Huaneng started to look for coal overseas. In 2009 it made a bid of 1 billion USD for a 51 per cent stake in PT Berau Coal, the fifth largest coal mine in Indonesia. By adopting M&A tactics, Huaneng faces less capital pressure and starts to earn profits once the transaction is complete because of the relatively shorter input stage. Nonetheless, this development path is very different and not very applicable to other power groups since it requires good connections with both central and local governments as well as strong support from the banks.

The development of Datang and Huaneng seem to exhibit a clear commercial logic: the enterprises always aim for more business and higher returns, and in turn these economic activities facilitate competition and promote market development. Their expansion activities, however, were not merely based on a business rationale but also involved political consideration. While managing the state sector, the SASAC set up a policy goal of building its best central SOEs into national champions and continuing to reduce the number of central SOEs in the respective industries. In the power sector, the Big Five were expected to be further integrated into two or three conglomerates; i.e., only the largest power groups survive. In order to stay atop, the Big Five viewed each other as major rivals and expanded as much as possible within a very short period of time. In the contest, Datang and Huaneng have always been the leading players, steadily widening the gap from the remaining three (see Figure 5-2). Variation in expansion results from different strategies and focuses (e.g. Huaneng on thermal power and coal supply, CGDC on wind power, and CPIC on nuclear power), but Datang and Huaneng have the inherent advantage that their founding general managers, Zhai Ruoyu and Li Xiaopeng, are more influential and have extensive personal connections in the government. Zhai had worked in both the industry and the MEI and was a high-level manager of SPCC before taking the position with Datang. Li Xiaopeng is son of Li Peng, who is the former top leader of the CCP and a long-term veteran in the electricity industry. Their personal backgrounds helped them to approach and negotiate with the central bureaucracy more easily and greatly contributed to both companies' expansion.

Figure 5-2: Increase in Installed Capacity of the Big Five



Sources: respective companies' websites.

We are now witnessing a severe competition which is not beneficial to market development. The Big Five have been striving to become the dominant actors selected by the SASAC in an emerging oligopolistic market. When the policy goals of the SASAC and SERC collided, the Big Five undoubtedly followed its bureaucratic supervisor and concurrently lobbied it to endorse their projects and negotiate with the state regulator on their behalf if necessary.

State-Facilitated, Regulation-Free Expansion

Beyond the investment in new power plants and M&A, the state has actually created opportunities for the Big Five to expand their business – the clean-up of the generation assets under the SGC and the ESOP enterprises. First, while the power sector was restructured in 2002, the Big Five did not inherit all the generation assets from the dismantled SPCC. The SGC kept two chunks of the generation assets: Item 920 and Item 647. Item 920 refers to 9.2 million KWs of attributable generation capacity that the SPCC's provincial subsidiaries possess in 38 power plants (ranging from a 1.1 per cent to a 48 per cent stake). These assets, which were provisionally managed by the SGC, have made up the earmarked fund to reform the 176 auxiliary companies. Item 647 indicates 6.47 million KWs of attributable generation capacity in eight power enterprises in which the SPCC was the majority stakeholder; it is regarded as a financial resource for grid development in the future. According to the reform scheme, these two items were to be sold in two years, but nothing was done until early 2006 because the central government had not formulated any substantial plans. Owing to the delayed schedule, the SGC created a subsidiary, Xinyuan Company Limited, in 2005 to manage Item 647 and intended to sell all the assets to Datang instead of going through public bidding. The inappropriate activities

invoked popular opposition from other state power groups and pushed the central government to find a solution to the problem. In July 2006, the WGER assigned the SERC to dispose of those assets.

Since the quality and ownership structure of these two Items vary, the central state decided to deal with Item 920 first and to open it to all investors who satisfy the qualifications set by the SERC. The divestiture of Item 920 was completed in mid-2007. Even though the central state welcomed all investors, most of Item 920 was purchased by the Big Five because of their political and economic strength, while only a small portion went to the local SOEs. The transaction of Item 647 was then immediately initiated and finished in the end of 2007. In order to avoid the risk of losing the state assets and causing a large-scale layoff in the state sector, the sale of Item 647 was exclusively to the Big Five. Although Item 647 was not as profitable as Item 920, obtaining part of it was the easiest way to gain market share in a given area, which made the transactions very competitive among the Big Five. Neither domestic nor foreign private investors benefited from the sales because of biased policies in favor of their counterparts in the state sector. The ultimate step of removing the generation assets from the power grids has nonetheless contributed to the rapid expansion of the Big Five. The central SOEs seized a great chance to develop, creating a state-driven oligopoly that has seriously damaged the embryonic power market. Ironically, while it was responsible for breaking up the monopoly, at the same time the SERC was also at fault for encouraging oligopolistic behavior – a self-contradictory task and a backward step in regulatory development.

Second, in order to prevent the loss of state assets and illicit profiteering by the local power grids, the SASAC decided to restructure the ownership of ESOP enterprises. The Big Five found another great chance to expand and began a fierce battle for the ESOP assets. Recently, three representative cases have gained public attention. Huaneng spent 6.6 billion yuan obtaining most of Luneng's generation assets - nearly 5.16 million KWs or about 90 per cent - in Shandong. This transaction allowed Huaneng to catch up with CHDC, the largest power generator in the province. Huaneng and CHDC each own around one-third of the local market.¹³³ In Ningxia, CGDC acquired a 51 per cent stake in Yinglite Electricity Group (Yinglite), which was an ESOP firm previously owned by the employees of the Ningxia Electric Power Group, a subsidiary of the SGC. Although CPIC ranked lowest among the Big Five in terms of installed capacity, its successful purchase of Jinyuan brought the company not only an increase in generation assets but also abundant hydraulic and coal resources in Guizhou. More clean-ups of the ESOP enterprises are ongoing, such as Changzhou Suyuan Electric Power Corporation in Jiangsu and Qimingxing

¹³³ The third largest power group in Shandong is CGDC. These three companies together own more than 75 per cent of the market share.

Electric Power Corporation in Sichuan.¹³⁴

The central government has spent a long period of time pushing through ownership reform in the ESOP enterprises since Document No. 37 was issued by the SASAC in 2003.¹³⁵ A tough problem plaguing the central state is how to enforce the regulations while not creating chaos in the power grid employees and the whole industry. As owner and supervisor of the SGC and CSPG, the SASAC took a soft tone and proposed that ESOP stake should be less than 10 per cent and that staff members ranging from senior executives to mid-level managers should be prohibited from holding shares in the power providers that feed their distribution systems. Conversely, the NDRC maintained a tough stand and insisted that the ESOP investment should be swept away. While challenged by the complexity of vested interests, the NDRC took an action to examine carefully the power plant projects submitted by the ESOP enterprises. For example, in 2005 the Maliantai power plant of Yinglite was declared illegal and suspended by the NDRC and SEPA, even though 2.66 billion yuan had already been spent on preliminary construction. In the end, Yinglite was forced to sell its entire ESOP stake while the NDRC emphasized that it did not target Yinglite but had stringently followed the “principles of power reform” to review the power generation project.

In 2008, the MOF, NDRC, SASAC, and SERC jointly promulgated the “Notice Concerning Opinions on Regulating Power Employees’ Investment in the Electric Power Enterprises (*Guanyu guifan dianli xitong zhigong touzi fadian qiye de yijian de tongzhi*)” (SASAC & NDRC [2008] No. 28) to demand that the power grid employees sell their stakes in power generators within a year. Later, the SASAC again issued a more general regulation to supervise SOE employees’ stakes and investment.¹³⁶ These official documents make the clear statement that SOE employees are banned from investing in enterprises with which they have close trading relationships. In the electricity industry, the SGC and CSPG completed the clean-ups of ESOP stock in July 2009 with a total value of almost one billion yuan. Consequently, this policy led to the unexpected outcome of an emerging oligopolistic market with vigorous competition among the Big Five. It also reflects the reality in the Chinese policy-making process that government institutions make policy decisions at their sole discretion without consulting with colleagues that were involved. In this case, while the SASAC and NDRC were pursuing the policy goal of preventing the loss of state assets, they did not evaluate potential policy influences comprehensively and envisage the ensuing regulatory predicaments. Their short-term

¹³⁴ See “Buyout Unplugs Another ESOP Power Firm,” *Caijing Net*, January 7, 2009, <http://english.caijing.com.cn/2009-01-07/110045594.html>, accessed August 23, 2009; “Dianli zhigong chigu qingpan (Clean up the ESOP Enterprises),” *Caijing* 243 (August 3, 2009).

¹³⁵ See ft. 11 in this chapter.

¹³⁶ “Opinion on Regulating SOE Employees’ Stake and Investment (*Guanyu guifan guoyou qiye zhigong chigu, touzi de yijian*),” (SASAC [2008] No. 139).

achievement was accomplished at the expense of regulatory development and will not pay off in the long run. Since the SERC was not directly related to the issue and therefore unable to contribute to policy formation, it was captured by the administrative procedures.

Moreover, as coal prices soar and electricity tariffs stagnate, the Big Five reaped the unanticipated harvest. When the local power companies suffered huge profit losses, they were forced to seek new owners or investors. With their stable financial situation, advantage of scale, and evident government support, the Big Five always topped the list in these kinds of deals. In 2008, CPIC obtained a 100 per cent stake in Dongfang Thermal Power Corporation in Hebei. In 2009, CHDC became the largest shareholder of Jinshan Power Corporation in Liaoning. More local power firms have been experiencing financial difficulties and looking for bidders, such as Guidong Electric Power Company in Guizhou, Mingxing Electric Power Company in Sichuan, and Dalian Thermal Power Company in Liaoning.

Hence, while taking advantage of their special status and government policies to expand their business, the Big Five marches against reform scheme. The purchase of existing generation assets helps them to develop into either a monopoly or an oligopoly in a given province, which is detrimental to the development of provincial power market. Each of the Big Five has successfully dominated the local market in their respective provinces, such as Huaneng in Inner Mongolia and Hainan; CHDC in Heilongjiang, Liaoning, Xinjiang, and Shandong; Datang in Hunan, Shaanxi, and Chongqing; CGDC in Ningxia; and CPIC in Guizhou. In the meanwhile, the Big Five have also adopted a strategy of extending their business to provinces in which they were not initially present. For example, CHDC only received generation assets in 14 provinces, but it now owns power plants in 25 provinces. CGDC and CPIC have generation assets in 29 and 28 provinces respectively – almost all over the country.

Clearly, when reform principles and policy goals collide in the power sector, reform principles give way. In other words, guided by their respective mandates and regulations, different government entities generate various policy initiatives that are neither comprehensive nor cohesive. A policy made by one agency may impose a negative effect on other agencies. In such cases, the more powerful one prevails. In 2002 the Chinese state reached a landmark achievement in restructuring the power industry by breaking up the SPCC monopoly. The central government encouraged competition by instituting the Big Five and reducing barriers to market entry to introduce more IPPs. Nonetheless, when the state first outlined the reform project in the mid-1980s, it adopted a strategy of “liberalization without privatization” to prevent the loss of state assets. Although the state aimed to solve the problems of capital shortage and scarce generating capacity, it had not offloaded any assets and let the power SOEs abuse their dominant position and therefore marginalize competitors. During a power shortage, all the enterprises

maintained their utilization hours and no competition existed. During a power surplus, the power grids purchased electricity from their own power stations first and then from the local power SOEs. The IPPs were always the last. After industrial restructuring, a seeming monopoly was gone and replaced with the power grids and the Big Five. These dominant actors enjoy the inherent advantage to prevail over both the local state-owned power generators and IPPs. Even though there are few giant local state competitors, such as Guangdong Yuedian Group, Beijing Energy Investment Holding Company, and Zhejiang Provincial Energy Group Company, some of them are contemplating forming a shareholder syndicate with the Big Five to develop their business.

Since the central state took action to solve the legacy problems of generation assets belonging to the power grids and the ESOP enterprises, the battle among the Big Five has gone wild. With assistance from their bureaucratic supervisors, the Big Five are able to strengthen their collective dominance, eliminating private rivals in the market and limiting competition to the state sector. The role of the SERC is marginalized or isolated during the process described above because these issues are not considered relevant to state regulation. The NDRC and SASAC have abused their regulatory authority for their own interests, thwarting regulatory development. In addition, an unequal power relationship among the government agencies decides the prioritized order of different policy goals. Different from the power grids which are actively involved in the policy-making process, the Big Five well exploit the state policies and discrepancies among state entities to avoid regulatory constraints.

IV. Local State Power Companies: The Local Conspirators

While the central government has adopted the gross domestic product (GDP) growth rate to evaluate local economic performance, local officials set great store in focusing on the figures that are crucial to their performance assessment and consequent promotion. In addition, as the Chinese economic development has rapidly advanced in the past two decades, power demand has surged. How to guarantee a stable power supply is directly associated with local economic performance and has become the toughest challenge facing the local governments. To these backward interior provinces, a viable strategy is to exploit their rich natural resources to develop electricity generation in a bid to attract more investment. Hence, the local governments have formed a strong coalition with the power enterprises and intentionally assisted them with expanding their business. They either cooperated with the Big Five or invested in the power companies via the local SASACs. The local governments were more inclined to have their own

power firms in order to maximize their rent.¹³⁷ Due to the lengthy review process and long construction time of power stations, an inevitable contradiction emerges between the central and local states. According to the regular process, all projects shall first be submitted to the PDRCs and go through the various stages from proposal, to feasibility report, and to examination and authorization. They work their way up to the NDRC for the ultimate, comprehensive permission.

Although it is quite clear that no construction can be initiated without the final approval, some power plants began to build when the proposal was submitted to the PDRCs. They were assisted by the PDRCs, which took charge of the rest of the process for them. In 2005, the total generating capacity of power plant projects which had been under construction without completing the approval process was up to 120 million KWs, about 23 per cent of the total installed generating capacity in China.¹³⁸ The local governments collude with the business entities in the form of a multitude of irregularities such as neglect of the central directives and standard procedures in approving the project; violation of land acquisition, water use, and bank loan regulations; forgery of project documents; and breach of tendering procedures. Sheltered by their local bureaucratic supervisors, the local state power companies have rapidly expanded and outpaced their private-sector competitors with relative ease. This is due to increasing local protectionism and a historical legacy inherited from the long-term struggles in central-local relations after decentralization. The Xinfeng power plant is a representative case which describes how a local-owned state power company was shielded from the regulatory process by the local government and enjoyed the privilege of unruly expansion.

The Tragedy of Xinfeng

In July 2005, the housing for a turbine collapsed and resulted in six fatalities and eight wounded in the half-finished Xinfeng power plant (hereafter Xinfeng) – a project owned by the Inner Mongolia provincial government. While deadly industrial accidents have been reported frequently in China, a case with a casualty of 14 is not extraordinary. According to the standard set up by the State Administration of Work Safety, an industrial accident which results in the death of at least 30 people is defined as a severe accident. This accident, however, immediately caught the attention of the country's top leadership, and the State Council organized a multi-ministerial investigation team in a week to examine the case with a focus on project violation instead of the cause of the accident. The members included the officials from the NDRC, MLR,

¹³⁷ In some cases, the local states were even competing with the Big Five so that they both submitted power plant proposals for the same location. For example, CHDC submitted a proposal for the Toubu power plant to the NDRC while Jinyuan submitted the Huajie power plant proposal for a similar location in 2003. As a result, the NDRC was unable to decide which project should get approval.

¹³⁸ “1.2 yi weigui dianjian qingchaji (Thoroughly Investigating Illegal Power Plants with a Total of 120 million KWs Generating Capacity),” *Caijing* 127 (February 21, 2005).

SERC, SEPA, SAWS, Ministry of Supervision, and China Banking Regulatory Commission. The Xinfeng accident exposes China's surging demand for electricity and the local states' desire to pursue rapid economic growth regardless of the means. It shows how China's economic transformation and decentralization has outpaced Beijing's ability to manage both the local governments and electricity industry.

Massive power shortages in the coastal cities have led to rolling blackouts since 2003. These areas, which possess abundant raw materials such as coal mines and water resources, have been motivated to develop power generation. The new power stations, often established illegally, keep the local economies humming and export power to cities with surging demand. Although the central government started cracking down on the unauthorized power plants for fear of a power glut in 2004, Inner Mongolia's provincial government gave the green light to Xinfeng. The power plant is located in Ulanqab County, only 40 miles away from a rich reservoir of coal in the city of Datong in Shanxi province. The total investment in Xinfeng was up to 2.89 billion yuan and its generation capacity was designed to consist of two 300,000 KWs coal-burning generators. Inner Mongolia's disobedience might have escaped notice and garnered enormous profits if the accident had not happened. In fact, in order to check the increase in illegal power stations, the State Council promulgated an emergent notice to restrain unapproved power plant construction in late 2004 and made it clear that power plants without approvals would be stopped right away.¹³⁹ In January 2005, Xinfeng appeared on a list issued by the SEPA that identified 30 power stations that had not passed environmental assessments. It was ordered to halt construction immediately. Later in May, while the NDRC arranged the development scheme of coal-fired power plants in Inner Mongolia, Xinfeng was excluded because no tangible improvements had been made to the project. Ironically, the central government's effort to rectify the situation was in vain, and Xinfeng was nearing 70 per cent completion when the fatal accident took place.¹⁴⁰

After a yearlong investigation, the findings were concluded in a report which unveils the reality that the Inner Mongolia provincial government misused its power and submitted misleading information to the central government. The construction project seriously violated regulations on land use and the bidding process. The significant transgression is that the local authority had ignored the central directives to stop building Xinfeng when the central government ruled the project illegal and issued a suspension of construction. On August 16, 2006, Premier Wen Jiabao presided over an executive meeting of the State Council and gave the approval to punishment on the relevant staff. Wen sternly reprimanded the province's top

¹³⁹ "Emergent Notice Concerning Resolutely Restraining the Disordered Power Plant Projects (*Guanyu jianjue zhizhi dianzhan xiangmu wuxu jianshe yijian de jinji tongzhi*)" (State Council [2004] No. 32).

¹⁴⁰ "Zhuicha neimenggu weigui dianchang (Investigate Illegal Power Plants in Inner Mongolia)," *Caijing* 138 (July 25, 2005).

leadership for their role in this unauthorized project and demanded that the chairman of the Inner Mongolia Autonomous Region, Yang Jing, and two vice-chairmen, Yue Fuhong and Zhao Shuanglian, submit self-criticism – a public form of rebuke which is designed to send a message to others that go against Beijing's will under the CCP system. The local government was also accused of failing to implement the central government's macroeconomic plan.¹⁴¹

In fact, the Xinfeng project was not supposed to be put into practice because it had not yet received approval from the NDRC (Ni 2007). It would never pass the NDRC's review because its ownership structure contravened the regulations. Xinfeng belongs to a power company controlled by a local SOE, Inner Mongolia Power Corporation (IMPC). IMPC is the only provincial grid company in China which is not supervised by SGC or CSPG, but wholly owned by the provincial government.¹⁴² Following the policy of separating generation and transmission, IMPC transferred its generation assets to Northern United Power Corporation in 2004, but it reinvested in power generation in 2005. Its general manager claimed to remake a new IMPC by strategically developing the grid system and establishing power stations by 2006 – an action to reintegrate the generation and transmission sectors. Moreover, the personnel arrangement in Xinfeng showed its close relationship with IMPC. Li Furong and Xu Xiangmin, both mid-level officials of IMPC, were appointed to the positions of deputy general manager and chief engineer respectively in early 2005. The deputy general manager and party secretary of IMPC, Wang Weiwei, also spent much time in Xinfeng coordinating construction-related issues.

In addition to Xinfeng, the central government also discovered that there were 10 illegal power plants in Inner Mongolia with a combined generating capacity of 8.6 million KWs and worth over 80 billion yuan in investment. Among them, IMPC had two: Zhunge'er Dafanpu power plant and Xilinhote Second power plant. What we may expect from the Xinfeng case is that if the accident had not happened, the power station would have been established and put into operation anyway.

Possessing abundant mineral resources, Inner Mongolia's local governments clearly realized that the best way to develop the local economy is to convert the natural resources into economic impetus to promote industrial development. By utilizing its rich coal mines, Inner Mongolia has expanded its electricity capacity and derived benefits in a twofold way. On the one hand, a plentiful power supply enables the local government to attract energy-intensive, heavy industries such as aluminum, iron, steel, and the like while the whole nation suffered severe power shortages. On the other hand, power plants per se are good sources of local revenue. For example,

¹⁴¹ "Neimenggu xinfeng dianchang weigui jianshe zao chachu (Illegal Construction of Xinfeng Power Plant in Inner Mongolia under Investigation)," *Caijing* 166 (August 21, 2006).

¹⁴² More information about the company is available at their official website, <http://www.impc.com.cn>, accessed September 12, 2009.

Dalate power plant in Erdos City pays more than 200 million yuan in taxes to the local government every year. The local governments have been seeking multiple layers of economic rents from power generation. According to the official procedure, a power plant project shall first submit a proposal to the PDRC, complete all the required evaluations by various departments including environmental protection, land resources, and so on, and then go all the way up to the NDRC. It would take at least one year to complete the whole process. Nonetheless, the reality is that the local governments permitted the projects to begin construction right after the submittal and took care of the examination for the power enterprises. They promised to get retroactive approvals for the power plants and also expected that the NDRC would grant them. During the lengthy administrative procedures, the local officials would frequently communicate with the bureaucrats of NDRC and of other relevant ministries and reiterate the importance of the projects.

Due to understaffing and a high workload, the central officials were unable to conduct on-site investigations; at most they could do it selectively and ask the local officials for more detailed data instead. This allowed the local officials to manipulate and provide partial information and thus increase project feasibility. The central regulatory agency is therefore captured by the uncertainty and the credibility of the information obtained from the local governments. Moreover, during their business trips to Beijing, the provinces' top leadership would purposely visit the responsible government institutions to express their deep concern over the power plant projects in their provinces and as well as have a private talk with the ministers about the issue. That is to say, they expertly exploited their informal authority, derived mainly from their ministerial ranks, to influence both the progress and the results of the project review. Hence, a common practice in most provinces is that the construction of power plants is implemented once the scheme is delivered to the PDRC, even though it is usually one year or even longer before they get an approval or a rejection. Inner Mongolia has successfully wielded the strategy and enjoyed the highest GDP growth rate in China for seven consecutive years since 2002.¹⁴³ It had 134 new power plant projects with a total investment of more than 400 billion yuan and a generation capacity of 84.35 million KWs between 2002 and 2005, but 22 of them were deemed illegal by either the NDRC or SEPA.

Tenacious Transgressors

The cases of the Yemazhai and Fa'er power plants in Liupanshui City in Guizhou province illustrate a different story about how the local SOEs were shielded by local governments, enabling them to escape the central government's investigation. The Yemazhai power plant

¹⁴³ The growth rates were 13.2 per cent in 2002, 17.6 per cent in 2003, 20.9 per cent in 2004, 23.8 per cent in 2005, 19 per cent in 2006, 19.1 per cent in 2007, and 17.2 per cent in 2008. *China Statistical Yearbook*, multiple year editions.

started construction in late 2003 with an investment of 2.14 billion yuan, and later the Fa'er power plant was implemented in mid-2004 with an investment of 10.88 billion yuan. Both power plants were owned by Jinyuan, an ESOP enterprise in which the Guizhou provincial SASAC has a two per cent stake.¹⁴⁴ These two power plants were first deemed illegal by the NDRC in 2005. They failed to pass the examinations and were asked to stop construction immediately. Jinyuan did not comply with the central directives to suspend the projects, deciding to speed up the process instead. It believed that the central government would concede and the project would not be demolished due to the large investment and extensive impact on the local economy. Yemazhai was completed and put into operation in January 2006. While the investigation team from the central government reviewed the case again in July and discovered the illegal activity, it did not impose a penalty; instead it merely asked the power plant to stop production until all the problems were fixed. Meanwhile, the Fa'er project continued and was expected to be finished by 2010.¹⁴⁵ These two power plants eventually ceased construction after the SEPA issued another warning and imposed a severe punishment in January 2007.

The reality behind the disobedience is that in Liupanshui, power demand has grown rapidly in tandem with the extraordinary boom in the high energy-consuming and polluting heavy industries. Power consumption has increased at an average rate of 18 per cent for many years and reached a record high of over 4100 MKW in 2006, accounting for one-third of the total power consumption in Guizhou province.¹⁴⁶ By using abundant coal resources to expand power generation capacity, the city government has guaranteed a stable power supply to attract investment in the energy-intensive industries. In 2005, more than 200 enterprises were established, and three-quarters of them were coking and coal washing plants. Accordingly, the local government collected revenue of more than 3 billion yuan. The city government has acted as a facilitator to assist the power companies and as a buffer to alleviate the pressure from the central ministries. Its various departments, including the development and reform commission, land resources, water resources, and environmental protection, all contributed to developing the power plant projects. While the central government gave a red light to Yemazhai and Fa'er, these local departments had not taken any corresponding actions to stop construction. The plentiful profit that is expected to accompany the increasing power supply strengthens the local government's resolve to risk defying central directives and to help the illegal power plants escape

¹⁴⁴ See ft. 17 in this chapter.

¹⁴⁵ "Guizhou baiyiyuan weigui dianchang kangfa guowuyuan sibuwei (10 Billion Illegal Power Plants in Guizhou against Four Ministries)", *CCTV*, 23 December 2006, <http://news.qq.com/a/20061223/000971.htm>, accessed 5 March 2007.

¹⁴⁶ The power consumption in Liupanshui was less than 2000 million KW in 2000, but it went up to 3740 million KW in 2005. The relevant information is that the land area of Liupanshui City is only about one-twentieth of and the population is less than eight per cent of Guizhou province's.

state regulation. Clearly, the central government has not been able to advance effective solutions to check rampant collusion at the local level.

With the local governments acting as powerful lobbyists and as a bureaucratic umbrella for the power plants, the central government was trapped in the predicament of incomplete information exchange and ineffective monitoring. Moreover, the role of the SERC is generally missing in the complex interaction between the central and local states. On the one hand, the local governments have intentionally overlooked the SERC, which has no discretion over the review and approval process. On the other hand, due to departmentalism, the ministries which have regulatory authorities were unwilling to invite the SERC's involvement in the elaboration process for the illegal power plants. The reality exposes the unreasonable regulatory arrangements and reflects the awkward position in which the SERC is placed. The IRA has been excluded from supervising the construction projects; it is unable to provide regulatory oversight until the power station is put into operation. The situation indicates that the IRA has not been captured but ignored by both the other government entities and the industry. Another noteworthy phenomenon is that the fiscal condition of the decentralized provinces has a negative correlation with the extent to which the local officials are willing to stand against the central directives. This is a departure from the conventional wisdom that the more fiscally autonomous the province, the more possible it is for the local officials to contravene the central government's policies. In the power industry, in the provinces, which are less developed and heavily fiscally dependent on subsidies from the central government, the local officials are more inclined to disregard the central regulations, which are too strict for their own financial resources. Certainly, this hypothetical statement merely provides a preliminary examination and needs further research and contemplation that goes beyond the discussion here.

V. Independent Power Producers: The Vanishing Competitors

Independent power producers (IPPs) generally refer to the private-owned power plants that sell electricity to the national and local grids through power purchase agreements. In China, there are two types of IPPs, domestic and foreign, and their cases describe different developmental paths under similar circumstances. In order to alleviate the capital shortage and expand power generation, the central government liberalized the industry and opened it to private investment in the 1980s. The central government provided preferential electricity prices and a certain quantity of on-grid volume to attract more IPPs. Due to the industry's characteristic of being capital-intensive, major investment first came from the collective units and local governments.¹⁴⁷

¹⁴⁷ The collective units refer to organizations with collective ownership, such as villages, townships, and factories.

Individual and foreign investors entered the industry later in the 1990s.

After a new regulatory system was created, the central government gradually reduced the IPPs' privileged status to develop a competitive price system. The volatility of government policy and an ineffective IRA, however, diminished the state's credibility and caused the IPPs to lose both profits and confidence. Furthermore, the IPPs have neither the appropriate channels to express their concerns nor the close ties to government bodies that their counterparts in the state sector enjoy. As a result, they retreated amid the paradox that they endured major losses when China suffered severe power shortages.

Being Forced out of the Game

More than two decades after liberalization, China's power generation continues to be dominated by the SOEs, with the IPPs only occupying a very small portion of the market. The hydropower boom was a distinctive opportunity for private investment in 2004. Many savvy private entrepreneurs invested in the hydropower stations in western China and the mountainous areas in the coastal provinces, especially Zhejiang and Fujian, that had abundant water resources. The far-reaching power shortage that started in 2002 whetted investors' appetites. Because the hydraulic power stations are less capital-intensive, have a short construction period, and do not have costs associated with transporting raw materials, the domestic private capital poured into small-scale hydropower plant projects. These power plants have greatly contributed to rural electrification and the local economy. Nonetheless, the building mania soon turned from a blessing to a curse for the fanatically profit-driven investors.¹⁴⁸ Although hydropower is a source of clean energy and is promoted by the national policies, hydropower plants and their accompanying dam construction are always controversial because of the mass dislocation of local residents and the environmental impact, such as ecosystem disruption and geologic erosion.¹⁴⁹ More importantly, these hydropower plants' owners encounter a structural constraint in that they are faced with a monopoly buyer who controls their on-grid volume. To get more profit, the local grids usually purchase electricity at the minimum prices set up by the local governments. In addition, there is no formal mechanism to settle price disputes between the two

The first non-central state-owned power plant was established in Longkou in Shandong province in 1984; the capital was collected from the county government and factory workers. "Jizi bandian, longkou dianchang danshengji (Fund-Raising for Investment in the Power Sector, the Birth of Longkou Power Plant)," *Indaa Net*, August 20, 2009, http://www.indaa.com.cn/wh/wh/200908/t20090820_204084.html, accessed September 27, 2009.

¹⁴⁸ There are more than 2,000 small-scale hydropower plants in Chongqing, with 90 per cent of them reporting a deficit in 2008. "Jiucheng minying xiaoshuidian kuisun, sishi laoban juhui shangliang chulu (Ninety Per Cent of Private Small-scale Hydropower Plants Suffer Losses, Forty Owners Convened to Find Solutions)," *Chongqing Shangbao*, July 2, 2008, <http://finance.sina.com.cn/roll/20080702/04052307710.shtml>, accessed September 30, 2009.

¹⁴⁹ For more information about hydropower politics, see Mertha (2008).

parties. With the rising construction and labor costs, increasing losses, and a gloomy future, the domestic IPPs have gradually withdrawn from the market.

The Retreat of Foreign Investment

In the early 1990s, China opened its doors to foreign direct investment to reduce chronic power shortages and to enhance the efficiency of power generation. In doing so, the Chinese state expected not only to improve energy efficiency but also to introduce advanced technology. Hence, the central government provided foreign investors with beneficial policies to guarantee the on-grid volume, an on-grid tariff, and a 15 to 20 per cent fixed-return rate. In 1997, the ratio of foreign investment in fixed assets reached a record high of 14.5 per cent. The investors came from countries such as the United States of America, Great Britain, France, Japan, and Germany (Blackman and Wu 1999). While the policies had been gradually abrogated since 2002, the foreign investors' rate of return dropped sharply and the foreign-invested power plants developed deficits.

In 2003, Sithe Energies, an American energy company, subsequently sold its equity interest in power plants in Zhejiang, Hebei, Guangdong, and Hubei, which had a total generating capacity of 1.5 million KWs and an investment of 1 billion USD. Alstom of France sold its 40 per cent stake in Laibin power plant in Guangxi province. In 2004, American Electric Power sold its 70 per cent stake in the Pushan power plant in Henan. In 2005, the giant German conglomerate Siemens and the colossal Swedish energy company Vattenfall jointly cleared out their 40 per cent interest in Hanfeng power plant in Hebei. Siemens also claimed that they will get rid of their stakes in 16 other power plants and no longer invest in power generation in China. After having been present in China's electricity industry for 9 years, Alliance Energy of the U.S. decided to quit in 2005. It had survived the power glut and remained profitable in the late 1990s, but four of its seven power plants suffered substantial losses when China underwent power shortages in 2004.¹⁵⁰

Because of the power plants' characteristics of large capital investment and long payback period, power investors prefer to have a stable investment environment. The surging demand for power and the encouraging packages offered by both the central and local governments explain the large amount of foreign direct investment in China's power sector in the early stages. Nonetheless, policy volatility has increased as the macroeconomic situation has shifted. Beyond the common predicaments in the power industry, such as rising coal prices and rigid electricity tariffs, the foreign investors encounter some distinct difficulties. First, the central government

¹⁵⁰ "Mei lianhenengyuan kaishi zai zhongguo chezi (Alliance Energy Has Started to Withdraw from China)," *Jingji Guanchabao (Economic Observer)*, July 18, 2005, <http://business.sohu.com/20050718/n226347758.shtml>, accessed September 28.

has invalidated the preferential policies. While this action was taken in 2002 as part of China's power reform scheme to establish a competitive tariff mechanism, it has resulted in the unintended consequences of great losses in foreign investment and the outflow of foreign capital. Second, the unavailability of an institutionalized mechanism is a hindrance to develop business. There are no formal channels through which foreign investors can express their concerns at the central or local levels. Third, the local states become the rivals. The local governments have established their own power plants, which enjoy privileged status. Fourth, debt financing is restricted. Because of the limited credit histories and networks in China, foreign debtors have little access to bank loans. Conversely, state power companies have always been supported by the state banks.¹⁵¹

Both the domestic and foreign IPPs share a similar predicament -- without the sustaining policy support and a mature market environment, they are in an inferior position to compete with the central and local SOEs. Domestic private investors' hydropower fever has been quenched by the unfair transactions with the grids. After having invested in China for many years, foreign investors have ironically found the environment more and more unfriendly as the reform has advanced. All these phenomena point to a fundamental dilemma: the persistent institutional barriers derived from uncertainty associated with a dysfunctional IRA exacerbate the risks for private entrepreneurs. The rise and fall of IPPs indirectly reflects the regulatory failure in China's power sector, in which the SOEs' involvement in the regulatory process is rampant and competition is greatly eliminated. That the IRA has been unable to ensure fair market operation has destined the IPPs to be victims of reform implementation.

In China's power industry, it is not a company's efficiency and efficacy but its ownership structure that decides its position in the market and its competitiveness. While both the central and local SOEs have exhausted their connections to the government institutions to evade state regulation and to expand their business, they have been doing so at the expense of the private sector's growth. Due to a lack of practical regulatory independence, the role of the IRA has been greatly constrained and even ignored in the interaction between the government and industry. The power grids have resisted further reform implementation and tried to maintain the existing monopoly status. The Big Five have been striving to expand, dominating their competitors in the state sector, to survive the battle. The local SOEs have flouted the rules without being punished and have been growing under the auspices of the local governments. The private sector has been the sole, unfortunate victim of this game because the SERC failed to fulfill its responsibilities

¹⁵¹ "Tanmi waizi dianli dierci tuichao diyin (Investigating the Second Retreat of Foreign Capital in the Power Sector)," *Zhongguo Touzi (China Investment)* 5 (May 2005).

and ensure a fair playing field. Consequently, the power industry has been moving toward an oligopoly even as it was being liberalized. Pervasive state ownership per se has unnecessarily weakened the new IRA, but the incomplete discretion powers of the IRA have deteriorated regulatory effectiveness. In the following chapter, the cases of the civil aviation and telecommunications industries demonstrate that non-IRAs are able to perform their tasks well while facing giant central SOEs as long as they have practical regulatory independence.

CHAPTER SIX

THE VARIETIES OF STATE REGULATION

The innovative regulatory system with an IRA in China's power sector has not effectively functioned, being unable to facilitate market development and promote consumer welfare. The case of the SERC has not followed the Western experiences with IRAs; instead, it showed how an IRA would fail if it was created merely as a nominal IRA. Conversely, regulatory development in the civil aviation and telecommunications industries has verified that possessing formal regulatory independence is not a necessary condition for a capable state regulator and that regulation by a government ministry is actually better than regulation by an IRA. In these two industries, the regulatory agencies are not institutionally autonomous, but they have been able to provoke competition and establish a functioning market during liberalization. The Civil Aviation Administration of China (CAAC) is responsible for monitoring the civil aviation sector and is supervised by the Ministry of Transport (MOT). The Ministry of Industry and Information Technology (MIIT) is the lead government ministry in charge of regulatory affairs in the telecommunications industry. These ministries' regulatory authority has not been interrupted but continuously consolidated at different phases of reform implementation. Hence, the CAAC and MIIT are functional IRAs that have obtained practical regulatory independence and are able to enforce regulation effectively.

I. Civil Aviation Industry: Running against the Trend

Regulatory development in China's aviation sector describes a very different route by which the regulatory agency has developed against the prevailing trend; it has lost its institutional autonomy as the industry has been liberalized. The CAAC, one of the very few government institutions that have a long and uninterrupted history dating back to 1949, was put under the new MOT in the government restructuring in 2008. Nonetheless, the regulatory system has evolved with and adapted to the rapidly changing situation. Despite losing formal regulatory independence, its persistent presence has enabled the CAAC to centralize practical regulatory independence and to prevent the dispersion of authority. The CAAC has always been a pivot in industrial restructurings and was able to develop into a professional regulator. Following the CAAC's instruction, China's civil aviation industry has substantiated the goals of phased reform, from differentiating the administrative and business functions to opening up the market and relaxing price controls, making remarkable achievements. The total turnovers of transportation, passenger traffic volume, and cargo and mail have increased to 37.68 billion ton-kilometers,

192.5 million persons, and 4.07 million tons respectively in 2008 from 0.3 billion ton-kilometers, 2.31 million persons, and 64 thousand tons in 1978. From 1990 to 2008, the number of civil aviation routes increased from 437 to 1,532 with a total mileage of 1.5 million miles. China now has 166 airports and more than 2,000 civil aircrafts. In terms of total air traffic turnover, its rank among the contracting countries of the International Civil Aviation Organization (ICAO) has risen to second place in 2005, just behind the U.S., from 37th in 1978.¹⁵²

Historical Context of Regulatory Development

The CAAC was established under the People's Liberation Army Air Force in November 1949, shortly after the founding of the nation, and was controlled by military for three decades. It provided general and commercial flight service and managed all non-military aviation. In 1980, Deng Xiaoping declared that the civil aviation industry should be more enterprise-based. The CAAC became a vice-ministry-level institution under the State Council and established a managerial system that enforced both administrative and business functions. The industry was to sever its ties with the military; this was regarded as the first step in the direction of development. In 1984, the CAAC drafted a reform scheme with a focus on splitting business from government and delegating authority to the local governments. The three major elements of the reform scheme were administrative entities, airline companies, and airports. In 1987, the State Council approved the CAAC's proposal – "Report Concerning the Reform Plan and Implementation in the Civil Aviation Industry" – with the principles of separation of the government and enterprises and liberalization.¹⁵³ Between 1987 and 1992, the CAAC created six regional bureaus (Central and South, Eastern, Northern, Northeastern, Northwestern, and Southwestern) and administrative bureaus in each province to form a three-level management system. Meanwhile, six airports were established and managed by the provincial administrations.¹⁵⁴ The airline division of CAAC was divided into six major airlines, Air China, China Eastern Airlines (CEA), China Southern Airlines (CSA), China Southwestern Airlines, China Northwestern Airlines, and China Northern Airlines, and two local airlines, Xinjiang Airlines and Yunnan Airlines. These eight airline companies were directly under the CAAC. Since then, the CAAC has acted solely as a government agency and no longer provides services.

In order to facilitate development, the State Council decided to relax market entry restrictions and encourage the local governments to invest in their own airline companies. In

¹⁵² See *Zhongguo Tongji Nianjian 2009 (China Statistical Yearbook 2009)*, Tables 15-36 and 15-37. Also see ICAO's website, <http://www.icao.int/>.

¹⁵³ "Guanyu woguo minhangye shichanghua giaige de jidian sikao (Few Points Concerning Market Reform in the Civil Aviation Industry)," *Jinrong Jingji (Finance & Economy)* 8(2008).

¹⁵⁴ The six airports were Capital Airport in Beijing, Shuangliu Airport in Chengdu, Baiyun Airport in Guangzhou, Hongqiao Airport in Shanghai, Taoxian Airport in Shenyang, and Xianyang Airport in Xi'an.

1985, the Shanghai Municipal Government founded Shanghai Airlines, the first local state-owned airline company. Until 1998, there were 15 local airlines.¹⁵⁵ The central government also opened the industry to foreign investment. The major enterprises, including, CEA, CSA, and Capital Airport, were listed in overseas stock exchanges. Overseas listing not only provides the industry with a reliable financing resource but also helps to improve corporate governance. CEA's debt-to-assets ratio dropped off from 81.9 per cent to 71 per cent, and Air China's debt-to-assets decreased from 92 per cent to 76 per cent. Shareholder supervision enables the top managers more responsible for company performance. The local governments also invited private investment to form shareholding companies. For example, the Hainan provincial government only invested 10 million yuan in Hainan Airlines and raised 250 million yuan and 24.5 USD from domestic and foreign private investors respectively.

In addition, many foreign invested aviation catering companies and aviation maintenance, repair, and overhaul (MRO) companies sprang up.¹⁵⁶ The policy of liberalization and introduction of local airlines had successfully achieved the targets and changed the existing situation. The local airline companies had increased its market share from 4.4 per cent in 1990 to 12 per cent in 1998. Some prominent airlines such as Hainan Airlines, Shanghai Airlines, and Xiamen Airlines, had experienced a 20 per cent growth rate in the late 1990s.¹⁵⁷ During the rapid development, the regulatory system had a corresponding improvement in that the CAAC was upgraded to a ministry-level government entity in 1993, enabling it to formulate numerous necessary administrative statutes to offset inefficiencies. The Civil Aviation Law, which has 16 chapters and 214 articles and comprehensively covers important issues such as aircraft, airports, and navigation, was promulgated in 1995 to provide the CAAC with a legal framework.

Moreover, the price mechanism also underwent reform, with the CAAC loosening the rules, but this proved to be an undeliberate move. In 1997, the CAAC set forth a policy of "one price, multiple discounts" to allow the airlines to provide customers with various discount fares and to promote take-up rates. The policy first greatly improved market competition but later led to the unanticipated consequence of a price war. Some airlines even offered 50 to 70 per cent discounts. The whole sector suffered a deficit of 2.44 billion yuan in 1998. Only eight months later, the CAAC was forced to step in and take measures to regulate prices in order to stabilize market. According to the revised rules, the discount was limited to 20 per cent. Due to the low take-up rate, the airlines did not firmly abide by the regulations, and the situation kept deteriorating. In

¹⁵⁵ They were Chang'an, Fujian, Guizhou, Hainan, Nanjing, Shandong, Shanghai, Shanxi, Shenzhen, Sichuan, Tongyong, Wuhan, Xiamen, Xinhua, and Zhongyuan.

¹⁵⁶ "Special Issue on the Reform in China's Civil Aviation Industry," *People Net*, <http://caac.people.com.cn/BIG5/118400/141849/index.html>, accessed October 16, 2009.

¹⁵⁷ "Guafen difang hangkong (Divvy up Local Airline Companies)," *Caijing* 67 (September 5, 2002).

January 1999, the CAAC announced a strict decree to put forward unified prices, prohibit discounts on retail fares, and limit discounts on group fares.

Nonetheless, the low take-up rate remained because the airline companies strived to expand their business and contravention to the government rules was rampant. The CAAC was compelled to revise the price policy again in March 2001 and lifted the ban on discount fares. Relaxation of the tariff regulation did not bring about positive effects; instead, price reductions went out of control. It was not rare for airline tickets to be cheaper than train tickets when traveling between two cities. Moreover, because of an airplane capacity glut and poor efficiency, the aviation sector suffered an overall deficit. In the first half of 2001, the whole industry had a deficit of 2 billion yuan and only three airlines (Hainan, Shandong, and Shanghai) made a profit (X. Wang et al 2004, 172-174). The policy of liberalization had not led the industrial development into a virtuous cycle in which competition and efficiency were mutually reinforced, but rather a vicious cycle in which tariffs and deficits were reciprocally aggravated. The volatile price policy reflected the reality that although the CAAC took charge of reform design, it failed to manage the implementation process and swiftly adjust to fast-changing circumstances; instead, it could only passively respond to the market deficiency.

The industry's unruly expansion and financial losses since the price policy was liberated in 1997 and the looming requirements that accompanied entry to the WTO finally pushed the central state to conduct a comprehensive industrial restructuring in 2002. While the reform plan was under development, there were two contrasting views. On the one hand, in a policy suggestion presented by the Development Research Center of the State Council (DRCSC), the researchers proposed to deregulate the industry and improve the managerial system. The proposal focused on clarifying the CAAC's responsibility; completely detaching the CAAC from the enterprises, including airlines, airports, and logistics companies; breaking up the monopoly in the aviation fuel and aviation supplies sectors; and marketizing the airports. The general guideline was first to sever the ties between the CAAC and the firms and then to reorganize the industry. The proposal was reviewed by the State Council and passed along to the CAAC for its reference.

On the other hand, the CAAC also drafted its own reform scheme and highlighted the priority of industrial restructuring. The plan aimed to build up three major airline groups, adopt a shareholding system, and improve corporate governance. Nonetheless, it was regarded as too narrow and lacking transparency because it only applied to the affiliated airlines and excluded local airlines, airports, and logistics firms. It also did not incorporate any ideas from the DRCSC's report.¹⁵⁸ In the end, the SDPC formulated the final version of the reform project,

¹⁵⁸ "Butong mingyun de liangfen baogao (Two Reports with Different Fates)" *Caijing* 39 (June 5, 2001); "Minhang

which was mainly based on the CAAC's proposal but significantly revised according to suggestions from various parties.

Developing into an Ideal IRA

In March 2002, the State Council promulgated the "Circular Concerning the Reform of the Civil Aviation Industry (*Guanyu yinfa minhang tizhi gaige fang'an de tongzhi*)" (State Council [2002] No. 6). This document initiated a thorough industrial restructuring and further improved the existing regulatory system. According to the reform project, the CAAC would get rid of its managerial responsibilities on the enterprises and transform into the sole state regulator. The CAAC has become more of an ideal IRA that acquires both formal and practical regulatory independence and is responsible for market development and industrial growth. The provincial bureaus were dismantled and the regulatory system was converted into a two-level structure (the CAAC and regional bureaus). The existing nine airlines affiliated with the CAAC were reorganized into three mammoth groups – Air China, CEA, and CSA – and relegated to the SASAC.¹⁵⁹ The auxiliary firms, including China Aviation Fuel, China Aviation Supplies, and China TravelSky, were also corporatized and placed under the ownership the SASAC. The local governments acquired the airports from the CAAC and created local SOEs to manage them.¹⁶⁰

Meanwhile, the CAAC also encouraged the local airlines to join in the three major groups or to team up to form new groups. Xiamen Airlines, Guizhou Airlines, Zhongyuan Airlines were merged with CSA, and Tongyong Airlines and Wuhan Airlines became part of CEA. Some other local airlines have taken advantage of the opportunity and expanded rapidly. Hainan Airlines integrated Chang'an Airlines, Xinhua Airlines, and Shanxi Airlines to establish Grand China Air Group and become China's fourth largest airline company. Sichuan Airlines and Shenzhen Airlines are another two distinguished cases.

In order to further promote competition, the CAAC lowered the barriers to market entry and encouraged both foreign and domestic investment to enter the industry.¹⁶¹ The registered capital for a new airline company is 80 million yuan. Foreign investors are allowed to have up to a 49 per cent stake, increasing from 35 per cent, in domestic airlines. The first private airline company

gaige dingju (Reform of the Civil Aviation Industry Was Confirmed)," *Caijing* 55 (March 5, 2002).

¹⁵⁹ China National Aviation Corporation and China Southwestern Airlines were merged with Air China. China Eastern Airlines purchased China Northwestern Airlines and Yunnan Airlines. China Southern Airlines acquired China Northern Airlines and Xinjiang Airlines.

¹⁶⁰ The Capital Airport in Beijing and Lhasa Airport in Tibet were not included and remain under the direct management of the CAAC. "Minhang Chongzu (Restructuring the Civil Aviation Industry)" and "Jintui zhijian (Between Moving forward and Stepping backward)," *Caijing* 32 (November 5, 2000).

¹⁶¹ See "Provisions for Foreign Investment in the Civil Aviation Industry (*Waishang touzi minyong hangkongye guiding*)" (CAAC [2002] No. 201) and the "Provisions for Domestic Investment in the Civil Aviation Industry (*Guonei touzi minyong hangkongye guiding*)" (CAAC [2005] No. 148).

to take off was Okay Airlines, established in 2005. The total number of private airline companies was 39 by 2007. Among them, Okay Airlines, Spring Airlines, United Eagle Airlines, Juneyao Airlines, and East Star Airlines were promising and profitable. Although the private sector was only a small portion of the whole industry, it performed well because of better efficiency and cheaper tickets. Moreover, the authority of setting prices has also been partially apportioned to the airline companies, and the prices are permitted to fluctuate within a certain range as a way to cultivate the market.¹⁶²

Nevertheless, prosperity did not last long and it soon came to an end in late 2008 because of the world recession. Although the whole industry made more than 10 billion yuan in windfall profits in 2007, the situation sharply worsened and the losses totaled 28 billion yuan in 2008.¹⁶³ During this difficult time for the entire industry, China's fledging private sector has been struggling to survive. The factors contributing to the decline of private airlines include slumping demand, shareholder disputes, credit constraints, and management problems. The story started with Okay Airlines. It had been operated in the red and failed to make a payment to the airports and fuel suppliers in a timely manner. All of its flights were suspended by the CAAC due to safety concerns in December 2008. United Eagle Airlines received a capital injection of 200 million yuan (equivalent to a 76 per cent stake) from local state-owned Sichuan Airlines to save it from bankruptcy in March 2009. It was the first case of nationalization of a private carrier. While it also suffered from a cash crunch, East Star Airlines was not as lucky as United Eagle Airlines; in August 2009 it became the first private airline company to go bankrupt.¹⁶⁴

The stumbling industry entered 2008 with three critical issues – government intervention in state airlines, replacement of the CAAC director, and the formation of the Ministry of Transport. Similar to their counterparts in the private sector, the central state-owned airlines experienced difficult times as well. Of China's afflicted airlines, CEA and CSA were on the edge of insolvency and appealed to the central state for help. They reported huge deficits of 13.9 and 4.8 billion yuan and extremely high debt-to-assets ratios of 98 per cent and 83 per cent respectively. In order to prevent the state airlines from falling into bankruptcy, the SASAC used the state capital management budget to inject capital into CEA three times with a total amount of 9 billion yuan and into CSA once with 3 billion yuan. The debt-to-assets ratio decreased to 94.7 per cent for CEA and to 80.5 per cent for CSA after acquiring the capital injection from the SASAC.

¹⁶² See “Plan on the Reform of Civil Aviation Domestic Air Transport Price (*Minhang guonei hangkong yunshu jiage gaige fang'an*)” (CAAC [2004] No. 18).

¹⁶³ “Minhangju fujuzhang: 2008 nian zhongguo minhangye jukui 280 yi yuan (Vice-Director of CAAC: China's Civil Aviation Industry Suffered a Great Loss of 28 Billion Yuan),” *Zhongguo Xinwenwang (China News Net)*, March 6, 2009, <http://news.sohu.com/20090306/n262636090.shtml>, accessed October 29, 2009.

¹⁶⁴ “China's Private Airlines Losing Altitude,” *Caijing Net*, January 8, 2009, <http://english.caijing.com.cn/2009-01-08/110045907.html>, accessed November 2, 2009.

Some public banks also offered more credit to both airlines. A series of revitalization measures provided some respite, but CEA's balance sheet remains weak and the debt-to-assets ratio again hit a high of 105 per cent. Despite such deep financial distress, CEA decided to pursue a merger with Shanghai Airlines. This deal would give it a remarkable edge in flight route allocation and cost control.¹⁶⁵ Behind this market decision is the state's effort to fix the problem, preserve state carriers' dominance, and boost Shanghai up as an international aviation hub.¹⁶⁶ In fact, Singapore Airlines had showed a keen interest in purchasing a stake in CEA but the bid was vetoed by Air China, which is a shareholder and had chosen to side with minority shareholders. Soon after, Air China made a bid for CEA, but it was rejected because the Chairman of CEA regarded such a move as eliminating competition in the sector.¹⁶⁷

While CEA was averse to the hostile stock purchase by a rival company, the government's attitude was even more crucial.¹⁶⁸ Yang Yuanyuan, former Director of the CAAC, clearly opposed mutual integration among Air China, CEA, and CSA and endeavored to liberalize and deregulate the industry during his tenure between 2002 and 2008.¹⁶⁹ Yang is an experienced pilot and had been working in the CAAC since 1981. He had been transferred to CSA and stayed there for 10 years (1988-1998) before returning to the CAAC as Deputy Director and then Director. Under Yang's watch, the CAAC has signed more liberal air service agreements with its aviation partners, opened up the domestic market to private investment, and approved a US-China open skies agreement in 2004 and further improved it in 2007. During this time the CAAC also removed the restrictions on domestic traffic rights, relaxed regulations concerning pricing, vastly improved flight safety with no fatal accidents since November 2004, and facilitated the transformation of ownership of three central state-owned airlines into a shareholding system.¹⁷⁰

After giving up ownership of airlines and airports, the CAAC focused on regulatory affairs, market development, and promotion of consumer welfare. Powerful leadership also contributes to the evolution of the CAAC and reduces intervention from other government agencies. In terms of party hierarchy, Yang is a current member of the Chinese Communist Party Central

¹⁶⁵ "Dongshang chongzu luoding, donghang huo yinru yangqi zhanlue touzizhe (Restructuring of CEA and Shanghai Airlines Was Settled, CEA May Bring in Central SOEs as Strategic Investors)," *21 Shiji Jingji Baodao* (21st Century Business Herald), July 13, 2009, http://www.21cbh.com/HTML/2009-7-14/HTML_VDQJ4FHSY25D.html, accessed November 1, 2009.

¹⁶⁶ "High-Altitude Aspirations," *Beijing Review* 52(28), http://www.bjreview.com/print/txt/2009-07/13/content_207065.htm, accessed November 2, 2009.

¹⁶⁷ "Merging China's Major Airlines Premature," *China Net*, October 31, 2007, <http://china.org.cn/english/business/230274.htm>, accessed November 5, 2009.

¹⁶⁸ "Minhang "sanguo yanyi" (Romance of the Three Kingdoms in Civil Aviation)," *Caijing* 207 (March 17, 2008).

¹⁶⁹ "Hangkong: meiyou xiaoyan de zhanzheng (Civil Aviation: War Without the Smoke of Gunpowder)," *Caijing* 204 (February 4, 2008).

¹⁷⁰ "Yang Yuanyuan: Piloting China's Aviation Growth," *Airline Business* (August 21, 2007), <http://www.flightglobal.com/articles/2007/08/21/216176/yang-yuanyuan-piloting-chinas-aviation-growth.html>, accessed November 5, 2009.

Committee (CCPCC), CCP's top decision-making body. His predecessors, Jiang Zhuping (1991-1993), Chen Guangyi (1993-1998), and Liu Jianfeng (1998-2002), were all former members of the CCPCC. However, with new leadership, the policy orientation has been shifting. Yang left the industry and was appointed Deputy Director of the State Administration of Work Safety in January 2008. His successor is Li Jiaxiang, former Chairman of Air China. Li is a retired Major-General and had served in the Chinese air force for three decades before becoming the party secretary in 2000 and then President of Air China in 2002. Different from Yang, Li has frequently claimed that China should build a domestic "super airlines" capable of competing with international airlines and has suggested that cross-shareholdings among domestic carriers would facilitate consolidation in the aviation industry. Although Li's promotion did not make China Air's bid on CEA possible, his views echo the SASAC's strategies of streamlining SOEs and developing industrial leaders in each sector.

Remaining a Functional IRA

In the administrative reform of 2008, the CAAC was merged into the new MOT and lost its institutional autonomy. Nonetheless, becoming part of the MOT has not weakened the CAAC's regulatory capacity because, on the one hand, it has possessed complete discretion and developed expertise from continual consolidations, and on the other hand, the personnel arrangement also ensures the CAAC's practical autonomy. Li, the incumbent Director of the CAAC, was promoted to be the Vice Minister and Deputy Party Secretary of Transport. He concurrently holds the position of the Director of the CAAC and continues leading the CAAC to regulate the aviation sector and to prevent intervention from other departments so that the CAAC can remain a functional IRA while falling from an ideal IRA. Beyond the concern over organizational independence, there is in fact a potential threat that makes the CAAC's future uncertain. The close relationship between the central state-owned airlines and the SASAC and the SASAC's goal to foster national champions overshadow market operation and state regulation in the aviation sector. It is still not clear to what extent the CAAC, or the MOT in general, is able to resist the SASAC and safeguard the existing market development, but changes in the regulatory landscape are expected in the near future.

II. Telecommunications Industry: Effective Regulation by a Government Ministry

From the initial Ministry of Post and Telecommunications (MPT) to the Ministry of Information Industry (MII) to the current MIIT, the regulatory functions in the telecom sector have always been executed by a government ministry. The lead ministry has always played a

leading role in designing and implementing the reform projects. Hence, although there has been no specific regulatory agency, it has continuously consolidated regulatory power and expanded regulatory capacity. Even the comprehensive commissions, such as the SDPC, the NDRC, and SASAC, could play only modest roles in the past reform implementation. Moreover, the lead ministry has maintained a dominant position in the industrial restructurings and prevented the central state-owned telecom companies from developing into powerful interest groups as their counterparts in the electricity industry have done. Each restructuring plan was viewed as an opportunity by which the state adopted critical policies to adjust its relationship with the industry. Although the experts endeavored to advocate distinguishing the administrative and regulatory functions and to create an IRA in the telecom sector,¹⁷¹ the lead ministry has been able to enforce regulations effectively and achieve rapid development.

China's telecommunication industry has been one of the fastest-growing industries in the reform era in terms of both capacity and revenue. It has also played a leading role in facilitating economic growth and fuelled trade in all sectors. From 1978 to 2009, the number of fixed-line subscribers grew from 1.93 million to 313.68 million.¹⁷² From 1990 to 2009, the number of mobile phone subscribers rose from 18,000 to 747.38 million. Combining the fixed telephone lines and mobile phones together, China has reached a high teledensity of 80 (lines per 100 people). The transaction volume of China's telecom service firms totaled 2568 billion yuan in 2009, in contrast to only 1.9 billion in 1978. At the end of 2009, China claimed to have 384 million people with access to the Internet.¹⁷³ China's telecom sector is among the largest in the world in terms of capacity and transaction volume.

Yet, despite such remarkable expansion, the sector has not been privatized and it remains a closed industry with only three central state-owned enterprises (SOEs). Private firms have been prohibited from providing services even after China joined the World Trade Organization (WTO). Nonetheless, the absence of a private sector does not hinder the liberalization process; the market system and competitive tariffs were successfully introduced. The key is that the regulatory framework has not been disrupted and has gradually strengthened its capability. Therefore, the lead ministry has ensured a functioning market for competition among state firms and enabled the consumers to enjoy more options and better quality of service.

¹⁷¹ "Xu jianli zhengjian fenli de tongyi jianguan jigou (Need to Create a Separate Regulatory Agency)," *Tongxin Xinxibao (Communication & Information News)*, March 20, 2008, <http://people.ciw.com.cn/news/20080320100700.shtml>, accessed January 12, 2010.

¹⁷² The growth rate of the number of fixed-line subscribers has been negative since 2006.

¹⁷³ Statistical database, the Ministry of Industry and Information Technology, <http://www.miit.gov.cn/n11293472/n11293832/n11294132/n12858447/13011909.html>, accessed February 5, 2010; *Zhongguo Tongji Nianjian 2009 (China Statistical Yearbook 2009)*, Tables 15-39.

Historical Context of Regulatory Development

Before the reform era, the regulatory structure was highly integrated and rigid. The MPT was established in November 1949 to develop and manage the industry, which was characterized by several distinctive features: a single service provider, availability to only a limited number of people (generally government officials), top priority given to national security, high tariffs, inferior technology, low quality, and a disproportionately low share of service in the rural areas. The industry was directly controlled by the state and suffered a great loss because of the inefficient state monopoly. It was a liability and a hindrance to economic development reflected in a reality that placing a local phone call was a frustrating ordeal and getting a fixed phone line installed was costly and time-consuming (Wang 2005, 52-53).

The situation changed when telecom sector was identified as a strategic sector by Deng Xiaoping at the very beginning of the economic reform. China's telecommunications industry has gone through several stages during the reform era. The central government first introduced competition by creating new operators and separated the business functions from the MPT to form an independent enterprise. Then, it dismantled the monopoly SOE to improve the market structure. The general guidelines were to establish a market, introduce competition, and facilitate industrial development.

The MPT consequently formulated many preferential policies and directives to inject funds into the industry and spur rapid growth. In the late 1980s, the lucrative monopoly rents in the telecommunications industry attracted other state agencies to the market, but the strong resistance of the MPT delayed their market penetration for a few years (Pei 2006, 103). The telecom sector experienced the first important advancement in liberalization in 1994 when the Ministry of Electronic Industry, the Ministry of Electric Power, and the Ministry of Railways (MOR) jointly established China United Telecommunications Corporation (China Unicom).

Meanwhile, the State Council authorized the creation of a new SOE, Jitong Communications Corporation (Jitong), to provide Internet service. The formation of China Unicom and Jitong indicated a fundamental paradigm shift in the evolution of the Chinese telecommunications system – the termination of the state monopolistic carrier and the commencement of economic liberalization (Yan and Pitt 2002, 64). In 1995, in order to streamline the supervisory structure and promote competition, the State Council separated and corporatized a department within the MPT, the Directorate-General of Telecommunications, to become a service operator – China Telecommunications Corporation (China Telecom), which inherited all the telecommunications services that were originally offered by the MPT. The MPT was therefore transformed into a regulator and policy maker. It also granted greater autonomy to the local branches to obtain equipment, make investments, and account for their performance

(Harwit 2008, 37). There was a clear commitment was to break with the traditional bureaucratic pattern of administration and engender pluralistic provision, presaging the ensuing structural reform. As a result, the priority of development in the telecom sector had been shifting from national security to economic growth.

Nonetheless, what lies behind such an impressive organizational restructuring is the reality that China Telecom essentially remained a subordinate of the MPT. In the absence of a well-developed regulatory framework, the road ahead for a new entrant was bumpy and full of obstacles. The experience of China Unicom during the period from 1994 to 1998 describes the predicaments a new entrant would encounter while competing with a powerful incumbent whose interests were closely aligned with the state regulator. The MPT abused its regulatory power to undermine its fledging rival by delaying China Unicom's business approvals for GSM cell phone networks and charging China Unicom excessive fees for access to the fixed-line networks. For example, although China Unicom had built its own wireless networks in 220 cities with a capacity of 700,000 subscribers, it was able to operate in only four cities (Beijing, Guangzhou, Shanghai, and Tianjin) and had fewer than 50,000 customers (Pei 2006, 104). Its stunted initial growth epitomizes the Chinese government's inability to reform the industry when the lead ministry is the biggest vested interest.

In the administrative reform of 1998, the Ministry of Information Industry (MII) was established to replace the MPT and facilitate the separation of government and business and the promotion of market competition. The central state also isolated China Telecom from the MII and made it an independent SOE. Different from the MPT which tightly controlled the industry, the MII instead strengthened its ability to set up standards and regulations and supervised the companies. The creation of the MII represented an attempt to divorce the regulatory and business arms of the former MPT and to consolidate regulatory discretion under a single authority. A two-level regulatory system came into being when the MII founded the provincial telecommunications administration bureaus in the late 1990s. The MII has protected its power over its jurisdiction by not only initiating and designing the reform but also making no concessions to other government entities or telecom firms.

In 1999, the MII was responsible for a complicated restructuring to reorganize China Telecom into four entities: China Telecom (fixed-line and data services), China Mobile (wireless), China Paging (paging services) and China Satcom (satellite services). China Unicom also received some of China Telecom's assets and acquired China Paging soon after. A few months later, the State Council authorized a new telecom firm, China Network Communication Group (China Netcom), to provide long-distance phone and Internet service. China Netcom had four

state shareholders¹⁷⁴ and received 325 million USD in equity investment from Goldman Sachs and News Corporation through a private placement. Because it possessed its own fixed networks outside of China Telecom's control, the MOR was not content with its small stake in China Unicom and China Netcom. Later, the MOR established China Railway Telecom (China Tietong) to provide fixed-line services and compete with China Telecom.

The reason for the frequent industrial restructuring is to accommodate conflicts of interest among the government agencies that wanted to share the remunerative monopoly profits. Simply increasing the number of operators is never an enduring resolution. Although there were six telecom enterprises, they each focused on providing only certain services. The market was fragmented and each company was either a monopoly or a duopolistic actor in their respective fields. After years of relocating market share among the various providers, the market order was still far from settled and competition remained quite low.

As China entered the WTO in late 2001, the telecom sector was pressured to improve the regulatory structure and open for foreign investment. In order to meet WTO requirements and elevate the efficiency of the domestic operators, the MII conducted a significant, comprehensive restructuring of the telecom sector in 2002.¹⁷⁵ China Telecom, the nation's fixed-line giant with 170 million customers, was spun off into two parts geographically along the demarcation line of the Yangtze River. The company that retained the China Telecom name controlled assets in 21 provinces which are along and south of the Yangtze River and in Northwestern China. The assets in the other 10 provinces in Northern China were integrated with China Netcom and Jitong to form the new China Netcom. In 2004, the MOR transferred China Tietong to the SASAC. At this point, there were six multi-functional central SOEs in the telecom sector (China Telecom, China Mobile, China Netcom, China Unicom, China Tietong, and China Satcom) with overlapping services. None of them monopolized the market since there were at least two operators in each segment.

Despite its defiant attitude toward foreign investors penetrating the sector, the Chinese government was eager to attract foreign portfolio investment in its state telecom firms through overseas stock listings. China Telecom, China Netcom, China Mobile, and China Unicom all have their subsidiaries listed in the Hong Kong and New York stock markets; the initial public offerings (IPOs) raised billions of U.S. dollars. Interestingly, the Chinese government seems more reluctant to let these enterprises receive domestic portfolio investment. To date, only China Unicom is listed in Shanghai. The likely explanations are the immature domestic stock markets

¹⁷⁴ They are the Chinese Academy of Science; the Ministry of Railway; the State Administration of Radio, Film, and Television; and the Shanghai City Government.

¹⁷⁵ State Council, "Circular Concerning the Reform of the Telecommunications Industry (*Guanyu yinfa dianxin tizhi gaige fang'an de tongzhi*)," (State Council [2001] No. 36).

and potential effects to the national economic stability. In addition to the industrial structure, the price mechanism was another object of reform. Price controls were loosened and the average level of tariffs decreased by 53 per cent in 5 years. With these measures, the MII transformed its role from controlling the industry to regulating the firms.

Though the regulatory development advanced smoothly and the formation of multiple telecommunications providers improved competition, the concentration of authority under the MII did not lead to widespread liberalization in the sector because of two critical issues. First, an ambiguous legal system had negative effects on overall development. The state's continuing monopoly was responsible for the failure of the National People's Congress (NPC) to pass the Telecommunications Law. While the drafting of this legislation was initiated in 1980, the final version of the draft law was completed and submitted to the State Council for evaluation in 2004. It took another two years before the draft law was presented to the NPC in 2006. Unfortunately, the whole process has been pending since then and the formal review and voting has not been scheduled.

Currently, the industry is governed by the Telecommunications Regulations promulgated by the State Council in 2000 and by other ordinances on private investment and Internet safety. These regulations are administrative statutes and have no real authority over market operation as the laws do. Since the MII was put in charge of drafting the legislation, its heavy involvement and defense of its self-interest seriously delayed the progress. There was a proposal to establish an IRA modeled after the U.S. Federal Communications Commission or the U.K. Office of Communications in the administrative reform of 1998, but it was not authorized due to strong opposition from the telecom bureaucracy. In addition, the Chinese state is reluctant to open up the telecom sector to private investors because of its concerns over national security and economic interests. There are also some unsettled problems with the interconnection between different operators and the integration of the three types of networks - communications, radio and television, Internet. These factors all contribute to the prolonging of the legislative process.¹⁷⁶

Second, technological advancement has created a new monopoly. After two rounds of restructuring, the China Telecom monopoly was successfully broken up and its market share was reduced to 33 per cent in 2002. However, as wireless technology has advanced rapidly in the past decade, the emerging trend worldwide is a much higher growth rate and quickly increasing numbers of subscribers of wireless services compared to fixed-line services. Against this background, China Mobile has developed itself into a new monopoly in the Chinese telecom market. Its market shares are about 70 per cent in wireless phone service and 50 per cent in the

¹⁷⁶ "Special Issue on China's Telecommunications Law," *Sina Net*, http://tech.sina.com.cn/focus/Telecom_Rog/index.shtml, accessed October 12, 2009.

overall industry in 2007. Moreover, China Mobile overtook Vodafone, a global telecommunications operator, and became the world's largest mobile network operator in terms of market value and subscribers even though it is operating in a single country.¹⁷⁷ Real competition failed to materialize because China Unicom, the only rival in the wireless sector, was too small – it held less than 30 per cent in wireless phone service and only 13 per cent of the overall market share. In comparison, China Mobile had a market share of 29.29 per cent and China Unicom had a market share of 6.15 per cent in the industry in 1999.

China Unicom has long been oppressed by behemoth China Mobile. In order to improve the deteriorating market imbalance, the MII and SASAC decided to rearrange the top-level managers in 2004. When the general managers of China Telecom and China Mobile retired, their positions were taken by Wang Xiaochu, then-president of China Mobile, and Wang Jianzhou, then-president of China Unicom, respectively. Chang Xiaobing, the then-vice president of China Telecom, became the president of China Unicom; his successor was Leng Rongquan, the then-vice president of China Netcom.¹⁷⁸ Consequently, this job rotation has not been able to prevent the gaps among the firms from widening. The issuance of the third-generation (3G) license has provided the central state an opportunity to break up China Mobile's monopoly and to build up a market mechanism in which all telecommunications operators proffer comprehensive services.

Reshuffling the Regulatory Structure

The regulatory system in the telecom sector underwent a significant restructuring in 2008. According to the reform scheme of the “big ministries system” (*dabuwei tizhi*), the MIIT, one of the five super-ministries approved by the NPC, was created to regulate major industries. It built around the core functions of the old MII and incorporated the functions of several previous ministries and offices.¹⁷⁹ The first minister is Li Yizhong, the former Chairman of the State Administration of Work Safety. The former minister of the MII, Wang Xudong, was appointed the vice-minister of MIIT for only one month and then become the Chairman of the SERC.¹⁸⁰ Although a proposal to create an IRA was put forward again, the central state decided not to

¹⁷⁷ “Vodafone Loses Crown as World's Biggest Mobile Group,” *The Sunday Telegraph (London)*, August 13, 2006.

¹⁷⁸ “Dianxin sida yingyunshang gaoceng huangang, jiejie e'xin jingzheng wenti (The Top-Level Managers of Four Major Telecommunications Firms Were Changed to Solve the Problem of Vicious Competition),” *Beijing Qingnianbao (Beijing Youth Daily)*, November 2, 2004, <http://tech.sina.com.cn/t/2004-11-02/0726451939.shtml>, accessed October 11, 2009.

¹⁷⁹ They are the Departments of Industry and Industrial Policy of the NDRC, the State Council Information Office, the Commission of Science, Technology, and Industry for National Defense, and the State Tobacco Monopoly Administration. “Ministry of Industry and Information Technology Inaugurated,” *China Daily*, June 30, 2008, http://www.china.org.cn/government/news/2008-06/30/content_15906787.htm, accessed October 22, 2009.

¹⁸⁰ “Wang Xudong, tuixiu qian zai ganyiba (Wang Xudong, Do Something before Retirement),” *Guoji Jinrongbao (International Finance News)*, May 7, 2008, http://paper.people.com.cn/gjjrb/html/2008-05/07/content_48473831.htm, accessed October 22, 2009.

single the telecommunications industry out but rather to merge it into a big ministry which oversees the whole industrial sector. In doing so, it aims to augment industrialization by integrating the development of information technology.

As part of a super ministry, the telecom sector would not be given the same weight it had under the MII. This arrangement has again caused concerns about whether regulatory functions would be delegated to an IRA or to a bureau-level institution.¹⁸¹ In an official document issued by the State Council in May 2009, the Chinese state made it clear that it will further open up the telecom sector and improve the regulatory system by separating the policy and regulatory functions and by creating an IRA at the appropriate time.¹⁸² Until this plan is initiated, the regulatory functions are being enforced mainly by the MIIT. Even with this government statement, we may not feel confident with the creation of an IRA while having learned lessons from formulating the Telecommunications Law.

Led by the MIIT, the latest round of the telecom restructuring plan was initiated in May 2008. The existing six firms were reorganized into three enterprises and issued each of them a 3G license. China Mobile acquired China Tietong. China Telecom obtained China Unicom's code division multiple access (CDMA) mobile network as well as China Satcom. The Global System for Mobile communication (GSM) network of China Unicom merged with China Netcom to form the new China Unicom. Consequently, three central SOEs all have business in both fixed-line and wireless services and compete with each other comprehensively. Along with the reorganizational scheme, the personnel arrangements were also adjusted. Wang Jianzhou remained to serve as the general manager and vice party secretary of China Mobile. Zhang Chunjiang, former president of China Netcom, transferred to act as the deputy general manager and party secretary of China Mobile. Wang Xiaochu stayed as general manager of China Telecom, and Shang Bing, former general manager of China Unicom, assumed the posts of deputy general manager and party secretary of China Telecom. Chang Xiaobing stayed on in China Unicom as the president and party secretary.¹⁸³

To date, the story has not yet come to an end and the regulatory system in the telecom sector is far from perfect. Although the MIIT still has to tackle unsettled problems such as the legal system, private investment, and the emerging challenges brought by technological advancement,

¹⁸¹ "Gongyehexinxihuabu chengli lujing jiemi (Demystification of the Establishment of the MIIT)," *Caijing Net*, March 13, 2008, <http://www.caijing.com.cn/2008-03-13/100052222.html>, accessed October 22, 2009.

¹⁸² State Council, "Notice Concerning Deepening the Economic Reform in 2009 (*Guanyu 2009 nian shenhua jingji tizhi gaige gongzuo de yijian*)," (State Council [2009], No. 26); "Guowuyuan chutai wenjian wei dianxin jianguan queding xin zouxiang (The State Council Issued a Document to Ascertain the Direction of Telecommunications Regulation)," *Tongxin Xinxibao* (Communication & Information News), June 3, 2009, <http://news.idcquan.com/news/729985.html>, accessed October 23, 2009.

¹⁸³ "Dianxin xin sango (New "Three Kingdoms" in the Telecommunications Industry)," *Caijing* 213 (June 9, 2008).

it has inherited complete discretion and regulatory capacity to monitor the industry from its predecessors. No matter when the proposal of creating an IRA will be substantiated, the MIIT demonstrated its ability to implement liberalization and regulate the state actors.

After examining regulatory development and the current regulatory system in the civil aviation and telecommunications industries, we explore a common feature: in both sectors the regulatory authority has not been disrupted and/or dispersed but consolidated as the reform advances. While they portray different evolutionary paths, the CAAC in the aviation sector and the lead ministry in the telecom sector have developed autonomy and expertise, and always occupied a dominant position in drafting and carrying out reform projects during the reform era. Although the natures of the sectors vary, their regulatory systems have been constantly improved. Due to their practical regulatory independence, the CAAC has not decayed while losing its institutional autonomy and the MIIT has been able to further liberalize the telecom sector as a government ministry. Compared to the power sector, these two industries have a regulatory system without an IRA, but they enjoy higher degrees of liberalization and market development. The key lies in the fact that the CAAC and MIIT are functional IRAs that wield their practical regulatory independence to develop the market and promote competition.

CHAPTER SEVEN

CONCLUSION

I. Powering Regulatory Capture in the Electricity Industry

The reform experience of the Chinese electricity industry describes how a post-socialist country restructures its state-business nexus by transforming the role of the state from owner-manager to separate owner and regulator while liberalizing the industry. As the only IRA in the Chinese industrial sector, the SERC provides a rich milieu to illustrate the changing role of the state and the shifting government-industry relationship. Due to China's unique political structure and market composition, the Chinese state regards the differentiation of the policy-making and regulatory functions, i.e., creating a specific, independent regulatory body, as the ultimate goal of industrial reform. While China's private sector has enjoyed a dynamic rise at the expense of the state sector in the past two decades, the state sector has revived and become more and more influential in the national economy. A government entity which is responsible for making policies and enforcing regulations would inevitably encounter a conflict in its ordained goals, such as requiring the SOEs to perform political tasks while maintaining fair competition. Policy burden would entail the SOEs carrying out assigned missions with state subsidiaries or preferential policies that are unfavorable to private rivals. Accordingly, performing both functions not only disrupts market order but also hurts the government's credibility.

When the SERC was formed as a sole state regulator in 2003, it was regarded as a model IRA for other industries and was expected to enforce regulations and perform tasks effectively. However, its compromised design made the SERC a merely nominal IRA and has caused its poor performance and regulatory capture, which reveal the truth behind the myth of the IRA. Institutional autonomy is a necessary requirement for IRAs to ensure independent execution. In the case of the SERC, institutional autonomy ironically restricts its operational abilities because of the SERC's inferior status and endogenous defects. The transitioning political configuration in the power sector resulted in a fragmented regulatory system with the SERC embedded within a broader government structure in terms of regulatory authority. Different from the separation of regulatory and policy functions, such fragmentation signifies the dispersion of regulatory power among various ministries. It has resulted from the absence of a regulatory agency between the dismantling of the Ministry of Electric Industry in 1998 and the creation of the SERC in 2003. The discontinued existence of a sole regulatory body leads to a situation in which the SERC has not been delegated full discretion since its inception.

The NDRC wields the two key regulatory instruments as policy apparatuses to manage the

national economy: setting up the prices and reviewing and approving the construction projects. Meanwhile, the power companies strive to lobby the NDRC to earn favorable treatment and ignore the SERC's rules. The SASAC's endeavor to develop the central SOEs into national champions in the commanding height industries significantly intervenes in market competition and bolsters the SOEs' unruly expansion. The SGC exploited the opportunity to strengthen its monopoly status. The Big Five benefited from the SASAC's policy and achieved rapid growth. Other government institutions that share supervisory power are also involved in regulatory enforcement to a different degree. Diffusion of authority generates both coordination problems and ambiguous responsibilities between the SERC and its colleagues. The local governments provide a bureaucratic umbrella to shelter illegal power plants and then reap profits in local revenues and economic growth. The prevalence of illicit local state power stations across the provinces demonstrates the SERC's incompetence at the local level. Intervention from other administrative bodies during the regulatory process and its own inability to consolidate its power base significantly deteriorate the SERC's effectiveness. Regulatory inefficiency has become an inescapable consequence resulting not from the market response but from bureaucratic struggles.

Moreover, the involvement of business in regulation plagues the fledgling state regulator. Power enterprises with different ownership structures attempt to influence the policy-making process, evading or confounding state regulation through various routes. The SGC, CSPG, and the Big Five take advantage of their easy accesses to the central government and exploit loopholes in the fragmented supervisory system. Unlike their counterparts in the Western countries who lobby legislature, they manipulate the discrepancies among the goals set up by various government entities to disrupt the reform process and perpetuate their interests. These central SOEs are growing into new oligopolies. The SERC's efforts to break up the monopoly were sadly in vain. The local state-owned power plants are taken care of by the local governments, which proffer both policy and administrative support because a stable power supply has become the key to economic success. The case of Xinfeng power plant delineates how the local government's economic consideration prevailed state regulation. Meanwhile, the state sector has risen at the expense of the private sector. The independent power producers are competing on an unequal basis and face increased vulnerability in the immature market. Both petty domestic investors and colossal foreign companies have relinquished their business even during the power shortages. The regulatory failure only reflects the fact that the reform has regressed. The previous efforts to introduce private investment and promote competition have been counterbalanced by shifting state concerns.

Being unable to provide either a platform for fair transactions or effective oversight reveals the SERC's insufficient capacity and limited autonomy. The SERC is captured indirectly by the

industry through state administrative procedures and institutional constraints. The initiative that the Chinese state took to create an IRA has not resulted in greater regulatory effectiveness and a functioning market as expected. Paradoxically, it has resulted in the unanticipated outcome of an oligopolistic market and regulatory capture. While the fate of the SERC is tightly connected to reform implementation in the power industry, the pragmatic nature and contingencies of Chinese economic development make it highly uncertain. Moreover, in the shadow of the mighty NDRC and stronger SASAC and provincial governments, this model IRA's future is dim. Furthermore, the possible formation of a new, grand energy ministry is always haunting the ineffectual SERC; this is expected to be put into practice in the next round of administrative reform in 2013. This nostalgic move seems to go against the original reform scheme to separate the regulatory and political functions, but it will integrate the regulatory mechanisms in various energy industries under a unitary authority. Whether or not the Ministry of Energy is created, it is very likely that the current regulatory system will be further modified.

By examining the case of the SERC, we show the gap between regulatory independence in form and regulatory independence in practice and how a nominal IRA is embedded in a bureaucratic system. In addition, regulatory development in China's electricity industry demonstrates that formal regulatory independence is easy to realize, but practical regulatory independence is a necessary condition for an IRA to function.

II. Cross-Sectoral Comparisons and Hypotheses Revisited

The electricity, telecommunications, and civil aviation sectors are three comparable cases with similar features in terms of the nature of the industries, development policies, and growth pace. The central state took the reform of these industries and regulatory systems in the same direction but ended up with different outcomes. By looking at the three industries, we illustrate the similarities and differences in their reform experiences and regulatory development.

During the reform era, these industries' evolvement of state regulation shared some similarities. First, while the three sectors had long been regarded as natural monopolies with a single state agency providing services, contemporary technological advancement has identified their competition and monopoly elements. It also made unbundling and competition possible. Accordingly, the sectors have all experienced several rounds of state-led restructuring before arriving at the current structure. Second, the role of the state has shifted as the Chinese industrial reform has advanced. Following the reform guidelines, these industries first separated the administrative and business functions and then differentiated between the ownership and regulatory functions. The central state has been transforming from a single omnipotent controller

into separate owner and regulator. Differentiation between the ownership and regulatory functions promotes independence and impartiality of regulators and facilitates the interests of consumers through effective competition. Third, the central state has adopted the policies of liberalization and deregulation in all three sectors. Although no state assets were privatized, the major state enterprises were spun off into multiple firms. Competition was invoked in an emerging market. Restrictions over private investment were removed so that domestic and foreign capital was able to enter the industries through various channels.

Nonetheless, we also find significant differences across these sectors. First, the power sector has advanced the furthest in terms of regulatory development and separating the policy-making and regulatory functions. The SERC was created as an IRA while the regulatory functions in the aviation and telecom sectors are performed by non-IRAs - the CAAC under the MOT and the MIIT. Second, the regulatory authority was disrupted and dispersed to various state entities in the power sector, while it has been continuously consolidated under a single agency in the telecom and aviation sectors. Hence, intervention from other government bodies occurs less frequently during the regulatory process in the telecom and aviation industries. Third, the CAAC and the MIIT hold a stricter attitude toward and have a greater voice in supervising the central SOEs than the SERC. Fourth, market outcomes and regulatory effectiveness vary. In the power sector, the market is oligopolistic and underdeveloped with a fixed price mechanism. The SERC is marginalized and not able to perform major regulatory tasks such as monitoring transactions. The civil aviation industry has the most advanced market with floating prices and companies with diverse ownership structures. The CAAC effectively enforces state regulations. In the telecom sector, even though the three providers are all central SOEs, price and service competition exists among them. The MIIT deliberately wields its authority and performs regulatory functions well.

These resemblances ensure comparability across the industries, and the variations fortify the arguments and theoretical approach presented in the early chapters of this dissertation.

Then, let us now return to the propositions regarding regulatory independence, the creation of a new IRA, and the embedded regulation dynamics model proposed in Chapter 2. The first two primary propositions suggest that for a regulatory agency, regulatory independence in form is less important than regulatory independence in practice. The case of SERC supports the proposition and demonstrates that having only institutional autonomy does not lead to effective regulation. Instead, the CAAC and MIIT, which are not institutionally independent, are able to achieve a higher level of regulatory effectiveness. The fact that the SERC's performance was weakened because of its problematic institutional design advocates the secondary proposition that in a transition economy, constructing a new IRA is an inferior choice to enhancing the

existing regulatory bodies. The SERC has shared regulatory authority with other state agencies and has had less leverage when interacting with the power companies. In contrast, the CAAC and the MIIT have continuously improved their performance by developing capacity and strengthening jurisdiction.

The embedded regulation dynamics approach is a theoretical model to evaluate how a regulatory agency is besieged by government entities and interest groups. It also illustrates the condition that an IRA needs both institutional autonomy and complete discretion to be an effective supervisory body. Otherwise, an ideal IRA will degrade to a functional or nominal IRA that either enforces regulations under an administrative supervisor or executes only partial regulatory functions. The degrees of dispersion of regulatory power and the extent of the involvement of the regulated firms have a positive relationship with an IRA's performance. Although the SERC is organizationally independent, its limited power and inability to resist business intervention proves that it is a nominal IRA, failing to further develop the market and manage its operation. Conversely, the CAAC and MIIT obtained greater authority and are able to avoid business lobbying. Hence, China's aviation and telecom industries enjoy higher degrees of market liberalization and state regulation. One caveat of the application of the model is that it focuses on the exogenous factors outside the IRAs. We may have to further elaborate and integrate the importance of endogenous factors, such as staffing and resources, within the IRAs to strengthen the model's explanatory power.

III. Lessons for the Study of Regulation and Chinese Political Economy

Most research on state regulation focuses on a best practice for IRAs, determining which is able to resist lobbying from elected politicians and regulated firms due to institutional autonomy and professional expertise. This study challenges the conventional wisdom and demonstrates that the IRA model is not comprehensively viable and actually has limited applicability in the Chinese context. Regulation by a government ministry or a non-IRA is better in China. This study also extends the debate over IRAs to two conditions that are popular in post-socialist countries but missing in the current literature: departmentalism and state ownership. When a government faces rampant departmentalism in the political sphere and has a strong state sector in the economic arena, the attempt to create new IRAs and improve regulation backfires. The distinction between regulatory independence in form and regulatory independence in practice explains the predicament.

In regard to state regulatory development in the economic transition in China, scholars

emphasize the development of institutional settings.¹⁸⁴ This study carefully examines the complex relationship among the major state regulators, peripheral regulatory agencies, and regulated firms. Various administrative bodies compose a fragmented regulatory system in which there are many loopholes available for the regulated firms to manipulate. Moreover, the enterprises with different property rights exhibit that access to the government is a critical factor in expanding business in a transition economy. The SOEs, both central and local, realize that they have strong interests and thrive best in the partially reformed world; thus they try to obstruct full-blown reform. The murky middle ground between the old state-dominated system and a fully open marketplace best serves their interests. While facing these state rivals in a not-yet-institutionalized market, the private companies are playing a subordinate role and run the risk of being forced out once the external environment shifts. The regulatory development in China's electricity industry and a comparison to the civil aviation and telecommunications industries shed light on the dilemmas and the feasible approaches that the other industries, such as railways and shipping, that are just beginning to initiate their reform process will likely encounter.

Furthermore, a noteworthy trends may not only change the current regulatory landscape in the three industries we discuss here but also affect the overall regulatory development in the Chinese industrial sector. A macroeconomic project supported by the government to promote the state sector has resulted in a shrinking private sector. This phenomenon of "state sector advances, private sector retreats" (*guojin mintui*) or "re-nationalization" (*zai guoyouhua*) has prevailed in several industries, including electricity, coal, civil aviation, and iron and steel.¹⁸⁵ Preventing the existing market from decaying to an oligopolistic market or worse requires the central state to build up a functioning regulatory regime. After years of regulatory development, China is still searching for a correct path toward greater regulatory effectiveness. With the tough tasks laying ahead, the battle has just begun.

¹⁸⁴ For example, Pearson (2005, 2006).

¹⁸⁵ "“Guojin mintui” zhi you (The Worry about the State Sector's Advancement and the Private Sector's Retreatment)," *Zhongguo Qiyejia (China Entrepreneur Magazine)*, May 27, 2009, <http://www.chinavalue.net/media/Article.aspx?ArticleId=43237>, accessed November 8, 2009.

REFERENCES

- Amsden, Alice H. 1989. *Asia's Next Giant: South Korea and Late Industrialization*. New York: Oxford University Press.
- Andrews-Speed, Philip, and Stephen Dow. 2000. "Reform of China's Electric Power Industry Challenges Facing the Government." *Energy Policy* 28(5): 335-347.
- Asian Development Bank. 2002. Technical Assistance to the People's Republic of China for Establishing the National Electricity Regulatory Commission. Manila: Asian Development Bank.
- Bai, Hongyi, and Jian Yan. 2005. "Chai Songyue yu dianjianhui: kunjing zhong mou gaige (Chai Songyue and the State Electricity Regulatory Commission: reforms in predicament)" *Zhongguo Xiaokang (Affluent Life in China)* 10: 47-49.
- Baldwin, Robert and Christopher McCrudden, eds. 1987. *Regulation and Public Law*. London: Weidenfeld & Nicolson.
- Becker, Gary. 1983. "A Theory of Competition among Pressure Groups for Political Influence." *Quarterly Journal of Economics* 98: 371-400.
- Bellier, Michel, and Yue Maggie Zhou. 2003. *Private Participation in Infrastructure in China*. Washington, D.C.: the World Bank.
- Berrah, Noureddine, Fei Feng, Roland Priddle, and Leiping Wang. 2007. *Sustainable Energy in China: the Closing Window of Opportunity*. Washington, D.C.: The World Bank.
- Blackman, Allen and Xun Wu. 1999. "Foreign Direct Investment in China's Power Sector: Trends, Benefits and Barriers." *Energy Policy* 27(12): 695-711.
- Braun, Dietmar. 2002. "Debate: State Intervention and Delegation to Independent Regulatory Agencies." *Swiss Political Science Review* 8: 93-96.
- Chang, Ha-joon. 1999. "The Economic Theory of the Developmental State." In *The Developmental State*, Meredith Woo-Cumings, ed. Ithaca, NY: Cornell University Press.
- Christensen, Tom, and Per Lægread. 2007. "Regulatory Agencies—The Challenges of Balancing Agency Autonomy and Political Control." *Governance: An International Journal of Policy, Administration, and Institutions* 20(3): 499-520.
- Cukierman, Alex, Steven B. Webb, and Bilin Neyapti. 1992. "Measuring the Independence of Central Banks and Its Effects on Policy Outcomes." *World Bank Economic Review* 6(3): 353-398.
- Dangdai Zhongguo Congshu Bianji Weiyuanhui (DZCBW). 1994. *Dangdai Zhongguo de dianli gongye (China Today: Power Industry)*. Beijing: Dangdai Zhongguo Chubanshe.
- Deyo, Frederic. 1987. "State and Labor: Modes of Political Exclusion in East Asian Development." In *The Political Economy of the New Asian Industrialism*, Frederic Deyo, ed. Ithaca, NY: Cornell University Press.
- DiMaggio, Paul J. and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48(2): 147-160.
- Dolowitz, David and David Marsh. 2000. "Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making." *Governance* 13(1): 5-24.
- Downs, Erica. 2008. "China's 'New Energy Administration.'" *China Business Review* Nov.-Dec.: 42-45.
- Gao, Shiji. 2002. "Shizilukou de zhongguo dianli chanye (China's Electricity Industry at the

- Crossroad).” In *Zhongguo jichu sheshi chanye de guizhi gaige yu fazhan (Regulatory Reform and Development in China's Infrastructure Industries)*. Xinzhong Zhang, ed. Beijing: National School of Administration Press.
- Garnaut, Ross, Ligang Song, and Yang Yao. 2006. “Impact and Significance of State-Owned Enterprise Restructuring in China.” *China Journal* 55: 35-63.
- Gilardi, Fabrizio. 2002. “Policy Credibility and Delegation to Independent Regulatory Agencies: A Comparative Empirical Analysis.” *Journal of European Public Policy* 9(6): 873-893.
- Gilardi, Fabrizio. 2005a. “The Formal Independence of Regulators: A Comparison of 17 Countries and 7 Sectors.” *Swiss Political Science Review* 11(4): 139-167.
- Gilardi, Fabrizio. 2005b. “The Institutional Foundations of Regulatory Capitalism: The Diffusion of Independent Regulatory Agencies in Western Europe.” *The Annals of the American Academy of Political and Social Science* 598: 84-101.
- Hawkins, Keith. 1984. *Environment and Enforcement: Regulation and the Social Definition of Pollution*. Oxford: Clarendon Press.
- Hellman, Joel S. 1998. “Winners Take All: The Politics of Partial Reform in Postcommunist Transitions.” *World Politics* 50(2): 203-234.
- Hood, Christopher, Colin Scott, Oliver James, George Jones, and Tony Travers. 1999. *Regulation inside Government: Waste-Watchers, Quality Police and Sleaze-Busters*. Oxford: Oxford University Press.
- Horwitz, Robert B. 1989. *The Irony of Regulatory Reform: The Deregulation of American Telecommunication*. Oxford: Oxford University Press.
- Hsueh, Li-min, Chen-kuo Hsu, and Dwight H. Perkins. 2001. *Industrialization and the State: The Changing Role of the Taiwan Government's Policy toward Development, 1945-1998*. Cambridge: Harvard Institute for International Development.
- Hu, Angang. 2002. “Xibu kaifa sanda yuanze: Ertan shuidian xiangmu yanzhong kuisun de diaoyan baogao (Three Major Principles in Developing the West: Report on a Large Amount of Loss in the Ertan Hydropower Project).” In *Yingxiang juece de guoqing baogao (Report on China that Affect the Policy-making)*. Angang Hu. ed. Beijing: Tsinghua University Press.
- Huang, Yasheng. 2008. *Capitalism with Chinese Characteristics: Entrepreneurship and the State*. New York: Cambridge University Press.
- Johnson, Chalmers. 1982. *MITI and the Japanese Miracle: the Growth of Industrial Policy, 1925-1975*. Stanford, CA.: Stanford University Press.
- Jordana, Jacint, and David Levi-Faur. 2005. “The Diffusion of Regulatory Capitalism in Latin America: Sectoral and National Channels in the Making of a New Order.” *The Annals of the American Academy of Political and Social Science* 598: 102-124.
- Jordana, Jacint, and David Levi-Faur. 2006. “Toward a Latin American Regulatory State? The Diffusion of Autonomous Regulatory Agencies across Countries and Sectors.” *International Journal of Public Administration* 29(4-6): 335-366.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2009. *Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008*. Washington, D.C.: The World Bank.
- Kennedy, Scott. 2005. *The Business of Lobbying in China*. Cambridge, MA.: Harvard University Press.
- Kessides, Ioannis. 2004. *Reforming Infrastructure: Privatization, Regulation, and Competition*. Oxford, Oxford University Press.

- Kung, James Kai-sing, and Yimin Lin. 2007. "The Decline of Township-and-Village Enterprises in China's Economic Transition." *World Development* 35(4): 569-584.
- Laffont, Jean-Jacques, and Jean Tirole. 1991. "The Politics of Government Decision-Making: A Theory of Regulatory Capture." *The Quarterly Journal of Economics* 106(4): 1089-1127.
- Lan, Zhiyong. 1999. "The 1998 Administrative Reform in China: Issues, Challenges and Prospects." *Asian Journal of Public Administration* 21(1): 29-54.
- Levi-Faur, David. 2003. "The Politics of Liberalisation: Privatisation and Regulation-for-Competition in Europe's and Latin America's Telecoms and Electricity Industries." *European Journal of Political Research* 42: 705-740.
- Levi-Faur, David. 2005. "The Global Diffusion of Regulatory Capitalism." *The Annals of the American Academy of Political and Social Science* 598: 12-32.
- Levi-Faur, David, and Sharon Gilad. 2004. "The Rise of the British Regulatory State: Transcending the Privatization Debate." *Comparative Political Studies* 37(1): 105-124.
- Li, Peng. 2005. *Power Comes First: Li Peng's Diary on Electric Power*. Beijing: China Electric Power Press.
- Lin, Justin Yifu, Fang Cai, and Zhou Li. 1998. "Competition, policy burdens, and state-owned enterprise reform." *The American Economic Review* 88(2): 422-427.
- Ma, Chunbo and Lining He. 2008. "From State Monopoly to Renewable Portfolio: Restructuring China's Electric Utility." *Energy Policy* 36: 1697-1711.
- Ma, Yingjuan. 2008. "Zhongguo zhengfu jianguan jigou goujian zhong de qieshi yu qianzhanxing sikao (On the Imperfection and Forward-looking Thinking about the Construction of the Chinese Regulatory Agencies)." *Hebei Faxue (Hebei Law Science)* 26(6): 80-86.
- Maggetti, Martino. 2007. "De Facto Independence after Delegation: A Fuzzy-Set Analysis." *Regulation & Governance* 1(4): 271-294.
- Majone, Giandomenico. 1996. "The Rise of Statutory Regulation in Europe." In *Regulating Europe*, Giandomenico Majone, ed. London: Routledge.
- Majone, Giandomenico. 1997. "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance." *Journal of Public Policy* 17(2): 139-167.
- Majone, Giandomenico. 1999. "The Regulatory State and Its Legitimacy Problems." *Western European Politics* 22(1): 1-24.
- Manion, Melanie. 2004. *Corruption by Design: Building Clean Government in Mainland China and Hong Kong*. Cambridge, MA.: Harvard University Press.
- Mao, Zedong. 1998. "Views on the International Situation." in *Mao Zedong on Diplomacy*, compiled by the Ministry of Foreign Affairs of the People's Republic of China and the Party Literature Research Center under the Central Committee of the Communist Party of China. Beijing: Foreign Languages Press.
- Marquand, David. 1988. *The Unprincipled Society: New Demands and Old Politics*. London: Cape.
- Mertha, Andrew C. 2008. *China's Water Warriors: Citizen Action and Policy Change*. Ithaca, NY.: Cornell University Press.
- Moe, Terry. 1982. "Regulatory Performance and Presidential Administration." *American Journal of Political Science* 26(2): 197-224.
- Moe, Terry. 1985. "Control and Feedback in Economic Regulation: the Case of the NLRB." *American Political Science Review* 79(4): 1094-1116.

- Moe, Terry. 1987. "Interests, Institutions and Positive Theory: the Politics of NRLB." *Studies in American Political Development* 2: 236-299.
- Moran, Michael. 2003. *The British Regulatory State: High Modernism and Hyper-Innovation*. Oxford: Oxford University Press.
- Müller, Markus M. 2002. *The New Regulatory State in Germany*. Birmingham: University of Birmingham Press.
- National Bureau of Statistics. 2009. *Zhongguo tongji nianjian 2009 (China Statistical Yearbook 2009)*. Beijing: National Bureau of Statistics.
- Naughton, Barry. 2006. "Claiming Profit for the State: SASAC and the Capital Management Budget." *China Leadership Monitor* 18(Spring).
- Naughton, Barry. 2008. "SASAC and Rising Corporate Power in China." *China Leadership Monitor* 24(Spring).
- Ni, Chun Chun. 2007. "The Xinfeng Power Plant Incident and Challenges for China's Electric Power Industry." *The Institute of Energy Economics, Japan: Research Report*. <http://eneken.ieej.or.jp/en/data/pdf/382.pdf>.
- OECD. 2001. *APEC-OECD Co-operative Initiative on Regulatory Reform*. Paris: OECD.
- OECD. 2002. *Regulatory Policies in OECD Countries: From Interventionism to Regulatory Governance*. Paris: OECD.
- Oi, Jean. 1992. "Fiscal Reform and the Economic Foundations of Local State Corporatism in China." *World Politics* 45(1): 99-126.
- Pearson, Margaret. 2005. "The Business of Governing Business in China: Institutions and Norms of the Emerging Regulatory State." *World Politics* 57: 296-322.
- Pearson, Margaret. 2006. "Regulation and Regulatory Politics in China's Tiered Economy." Paper presented for a conference on "Capitalism with Chinese Characteristics: China's Political Economy in Comparative and Theoretical Perspectives." Indiana University. May 19-20.
- Pearson, Margaret. 2007. "Governing the Chinese Economy: Regulatory Reform in the Service of the State." *Public Administration Review* 67(4): 718-730.
- Pei, Minxin. 2006. *China's Trapped Transition: The Limits of Development Autocracy*. Cambridge, MA.: Harvard University Press.
- Peltzman, Sam. 1976. "Toward a More General Theory of Economic Regulation." *Journal of Law and Economics* 19: 211-240.
- Peltzman, Sam. 1989. "The Economic Theory of Regulation after a Decade of Deregulation." In *Brooking Paper on Economic Activity*. Washington D.C.: Brooking Institution.
- Pempel, T.J. 1998. *Regime Shift: Comparative Dynamics of the Japanese Political Economy*. Ithaca, N.Y.: Cornell University Press.
- Posner, Richard A. 1974. "Theories of Economic Regulation." *Bell Journal of Economics and Management Science* 5(2): 335-358.
- Power, Michael. 1997. *The Audit Society: Rituals of Verification*. Oxford: Oxford University Press.
- Prosser, Tony. 1997. *Law and Regulators*. Oxford: Clarendon Press.
- Rasmussen, Eric B. and Mark A. Zupan. 1991. "Extending the economic theory of regulation to the form of policy." *Public Choice* 72(2-3): 167-191.
- Sapio, Flora. 2008. "Shuanggui and Extralegal Detention in China." *China Information* 22(7): 7-37.
- Sezen, Seriyeye. 2007. "Independent Regulatory Agencies in Turkey: Are They Really

- Autonomous?" *Public Administration and Development* 27(4): 319-332.
- Shao, Shiwei, Zhengyong Lu, Nourreddine Berrah, Bernard Tenenbaum, and Jianping Zhao, eds. 1997. *China: Power Sector Regulation in a Socialist Market Economy*. Washington, D.C.: The World Bank.
- Smith, Warrick. 1997a. "Utility Regulators—The Independence Debate." *Public Policy for the Private Sector* 127. Available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1999/08/15/000009265_3980219162756/Rendered/PDF/multi0page.pdf.
- Smith, Warrick. 1997b. "Utility Regulators—Roles and Responsibilities." *Public Policy for the Private Sector* 128. Available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/10/24/000009265_3980218124925/Rendered/PDF/multi_page.pdf.
- State Electricity Regulatory Commission. 2007. *The Annual Report on Electricity Regulation (2006)*. Beijing: State Electricity Regulatory Commission.
- Steinfeld, Edward. 1998. *Forging Reform in China: The Fate of State-Owned Industry in China*. New York: Cambridge University Press.
- Stigler, George. 1971. "The Theory of Economic Regulation." *Bell Journal of Economics and Management Science* 2(1): 3-21.
- Sun, Yan. 2004. *Corruption and Market in Contemporary China*. Ithaca, NY.: Cornell University Press.
- Thatcher, Mark. 2002. "Delegation to Independent Regulatory Agencies: Pressures, Functions and Contextual Mediation." *West European Politics* 25(1): 125-147.
- Thatcher, Mark and Alec Stone Sweet. 2002. "Theory and Practice of Delegation to Non-Majoritarian Institutions." *West European Politics* 25(1): 1-22.
- Verhoest, Koen, B. Guy Peters, Geert Bouckaert, and Bram Verschuere. 2004. "The Study of Organizational Autonomy: A Conceptual Review." *Public Administration and Development* 24(2): 101-118.
- Vogel, Steven. 1996. *Freer Markets, More Rules: Regulatory Reform in Advanced Industrial Countries*. Ithaca, N.Y.: Cornell University Press.
- Wade, Robert. 1990. *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton, N.J.: Princeton University Press.
- Wang, Bing. 2007. "An Imbalanced Development of Coal and Electricity Industries in China." *Energy Policy* 35: 4959-4968.
- Wang, Junhao, et al. 2004. *Zhengfu guanzhi jingjixue daolun: jiben lilun ji qi zai zhengfu guanzhi shijian zhong de yingyong (An Introduction to the Economics of Regulation: Fundamentals and Application)*. Beijing: Shangwuyinshuguan.
- Wang, Junhao, et al. 2005. *Zhongguo longduanxing chanye jiegou chongzu, fenlei guanzhi yu xietiao zhengce (Restructuring, Differentiated Regulation and Coordinated Policies in China's Monopoly Industries)*. Beijing: Shangwuyinshuguan.
- Wang, Junhao and Xiaomei Zhou. 2008. "Dabuzhi beijing xia longduanxing chanye de guanzhi jigou gaige: yi zhongguo dianli guanzhi jigou gaige weili (Discussion about Reform of Regulatory Agencies in Monopoly Industries under China's Large Government Departments System: Taking Regulatory Agency in China's Electricity Industry as an Example)." *Zhongguo Gongye Jingji (China Industrial Economics)* 244: 47-56.
- Wang, Shaoguang. 2006. "Regulating Death at Coalmines: Changing Mode of Governance in China." *Journal of Contemporary China* 15(46): 1-30.

- Wang, Xueqing, et al. 2004. *Guanzhi longduan: longduanxing hangye de zhengfu guanzhi (Regulate the Monopoly: State Regulation in the Monopoly Industries)*. Beijing: Zhongguo Shuili Shuidian Chubanshe.
- Wilson, James Q. 1980. *The Politics of Regulation*. New York: Basic Books.
- Woo-Cumings, Meredith, ed. 1999. *The Developmental State*. Ithaca, N.Y.: Cornell University Press.
- Wood, B. Dan and Richard Waterman. 1991. "The Dynamics of Political Control of the Bureaucracy." *American Political Science Review* 85(3): 801-28.
- World Bank. 2005. *China: Deepening Public Service Unit Reform to Improve Service Delivery*. Washington D.C.: The World Bank.
- World Trade Organization. 2001. *Report of the Working Party on the Accession of China*. Document WT/ACC/CHN/49. Geneva: World Trade Organization. Available at <http://docsonline.wto.org/imrd/directdoc.asp?DDFDdocuments/t/WT/ACC/CHN49.doc>.
- Xu, Shaofeng, and Wenying Chen. 2006. "The Reform of Electricity Power Sector in the PR of China." *Energy Policy* 34: 2455-2465.
- Yan, Xu, and Douglas Pitt. 2002. *Chinese telecommunications policy*. Boston: Artech House.
- Yang, Dali. 2004. *Remaking the Chinese Leviathan: Market Transition and the Politics of Governance in China*. Stanford, CA.: Stanford University Press.
- Yang, Ming, and Xin Yu. 1996. "China's Power Management." *Energy Policy* 24: 735-757.
- Yang, Yongping, Xiyan Guo, and Ningling Wang. 2009. "Power Generation from Pulverized Coal in China." *Energy* 30: 1-13.
- Yuan, Chunhui, and Xun Zhang. 2008. "Zhongguo dianxinye chaifen chongzu de shichang jixiao pinggu (The Market Performance Assessment of Split and Restructuring in China's Telecommunication Industry)." *Beijing Youdian Daxue Xuebao (Journal of Beijing University of Posts and Telecommunications)* 10(2): 4-10.
- Zhang, Chi. 2005. "Zhongwai dianli gaige lilun he shijian de bijiao fenxi (A Comparison Analysis on Theory and Practice of Power Sector Reform in China and Other countries)." *Dianli Jishu Jingji (Electric Power Technologic Economics)* 17(4): 8-14.
- Zhang, Chi, and Thomas C. Heller. 2007. "Reform of the Chinese Electric Power Market: Economics and Institutions." In *The Political Economy of Power Sector Reform: The Experience of Five Major Developing Countries*, David G. Victor and Thomas C. Heller, eds. New York: Cambridge University Press.
- Zhang, Dicheng. 2006. *Zhongguo Guoyouqiye Gaige Biannianshi (The Chronicle of the Chinese State-owned Enterprises Reform)*. Beijing: Zhongguo Gongren Chubanshe.
- Zhao, Xiao. 2004. "Dianli duanque genyuan zaiyu guanzhi shixiao (Power Shortage Has Resulted from Ineffective Regulation)." *Zhongguo Dianli Qiye Guanli (China Power Enterprise Management)* 1: 23-24.
- Zhongguo dianli nianjian bianji weiyuanhui. *Zhongguo dianli nianjian 2006 (China Power Yearbook 2006)*. Beijing: China Electric Power Press.
- Zhu, Chengzhang. 2002. "Zhongguo dianli tizhi gaige wushinian (Fifty years of structural reform in the Chinese electric power industry)." *Zhongguo Dianliwang (China Power Net)*. Available at <http://www.chinapower.com.cn/article/1001/art1001063.asp>.
- Zhu, Tian, and Yimin Lin. 2001. "Ownership Restructuring in Chinese State Industry: An Analysis of Evidence on Initial Organizational Changes." *China Quarterly* 166: 305-341.