

**POLICY RECOMMENDATIONS ON THE COMPREHENSIVE
REFORM OF THE NATIONAL ELECTRICITY SYSTEM**

Issue Unit of the Research Team, Power Regulation Commission

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1. Fundamental evaluation and analysis on the operation of the current regulatory system for power

In February 2002, the State Department issued the “Project for reform project of power system” (No. 5 [2002] State Department), which set out government reforms of the power industrial management system and established a specialized power regulation institution. In March of 2003, the National Power Regulation Commission (hereinafter “Power Commission”) was established, and with authorization by the State Department as responsible for conducting the regulation of electricity nation-wide. Relevant departments of the State Department will, based on related legal provisions, continue to conduct relevant responsibilities. Thus, a novel framework of supervisory system had been officially formulated, and the modern practice of regulating power had been initiated in China.

Over its last three years of operation, the new system has positively supported the development of a competitive electricity market, facilitated the government in improving its management and understanding of electricity regulation, upgraded scientific knowledge and capacity to regulate electricity, and more. Rapid development of electric power generation reflected stable implementation of industrial safety practices, and smooth progress in electricity reforms, despite the separation of plant and grid, drastic adjustments to the relationship between the two (including the distribution of benefits between the two), as well as large-area power shortages nationwide. It is notable that the process was not characterized by chaotic situations or safety incidents as in the coal and other industries. These facts support that the electricity reforms implemented in 2002 by the core of the party and the State Department including by taking initiatives to establish a monitoring system and dedicated monitoring agency, has successfully initiated reform in the domestic electricity market.

However, considerable gaps remain between the expectations from the policy objectives designated at the onset of reforms, and the actual implementation outcomes of the new system over the past three years. These gaps can be found in two areas: 1. no fundamental change has occurred in the manner that power is managed by the government, and no resolution has been achieved on overlaps and gaps in regulatory duties and responsibilities. As a result, areas requiring significant regulation have not been well managed, while areas where much latitude should be provided have remained constrained. As a result, the effects of management are not pronounced; 2. the newly-established supervisory body lacks effective regulatory powers and instruments, and is thus constrained in carrying out its duties and responsibilities.

We believe that several conclusions can be drawn from the current scenario of power regulation in China:

(1) Shortcomings remain regarding the understanding of power regulation. Indeed, no consensus has ever been formulated regarding those affected by the positioning of plants, system design, system arrangement, the distributive regulatory functions, and supervisory responsibilities, or the assessment of regulatory activities and outcomes.

The regulation of infrastructure services is a new development in China, and it is therefore natural that a period of transition will be necessary before the practice of regulation matures. For the past three years, every party has through continuous efforts realized a general deepening in their knowledge of regulation, and obtained a deeper and more comprehensive specific understanding and appreciation of regulation within Chinese context. As can be observed, some views and opinions on important issues concerning power regulation have in the past been overly narrow and have thus fallen short of comprehensiveness and accuracy. Such constraints on knowledge have directly affected the positioning, system design, system arrangement, allocation of regulatory functions, and the assessment of regulatory activities and outcomes. A selection of representative problems include:

First of all, there exists lack of clarity on the meaning of regulation. In the past, “economic regulation” did not exist. Regulation and management under a planned economy is different from that under a market economy. Under a market economy, regulation is an important means for managing the economy. Generally speaking, it refers to direct and indirect government interventions that impact enterprises upon their entry into the market. These interventions can include decisions related to: pricing, product quality, service conditions (e.g., safety), environment and public services according to legal provisions. Two types of misperceptions often associated with reform of power regulation are: 1. one, an overly simplified conception of regulation as regulation and management as found in conventional administrative management, which views regulation as simple re-allocation and re-adjustment of industrial management license among different departments. In contrast, modern regulation is an entirely new system and way of management. It is an innovative system implemented by the government for managing the economy. In practice, the perspective is of government regulation under the market economy system, for planned management. Preconceptions and misunderstandings of regulation continue to impact modern regulatory practices, which have not escaped from previous mentalities, and have thus not sought to simplify the system of management and regulation. It has also been found that the design of reform projects have not been implemented in strict accordance with the requirements of regulatory system for system design and allocation regulatory functions. Second, power regulation is being conducted as if it was for market regulation for general competitive businesses (market regulation for general competitive business is considered to be a kind of market regulation in significance, with less economic and regulatory content). This has resulted in an inaccurate approach towards power regulation in the first instance, and resulted in power regulation, in a narrow sense, as that over competitive behavior in the power market. In practice, power regulation must address features of power related to its status as an infrastructure industry with features of natural monopoly as well as market regulation in order to enhance efficiency within the power generation industry. With distinguishing differences in scope, content, and means of regulation, power regulation is different in essential ways from other businesses. As long as the power industry reflects features of natural monopoly and public utility, it will require government regulation. Regulation for competitiveness in the power market will however reflect attributes similar to that of other businesses. Regulatory institutions for power in the United States have more than eighty years of history, but it was only twenty years ago that reforms were implemented to establish a competitive power market. On this point, the market regulation of power as in the case of securities can only be effective to the extent they are not completely natural monopolies. To restrict power regulation to merely enhancing market competition through regulation in its narrow sense would certainly constrain the effect and conduct of regulation.

Second — insufficient knowledge of the external environment for power regulation during system transition period — any system must account for environmental context when assessing its existence and effect, and there is no exception in the case of power management and regulatory systems. Most domestic power industries throughout the western world had gone through a period of monopoly before entering the current period of liberal competition. Competition within the domestic power sector has shifted directly from planned economy, and highly a nationalized system of domestic monopoly. Therefore, the power industry is currently moving from planned economy to market economy, from monopoly to competition, and from administrative management to regulation by law. This is all occurring within an overall domestic economy that is currently undergoing a transformation from semi-planned to a market economy. The typical features of this stage within the process of economic transition include an old system that is no longer whole — and yet not fully withdrawn — which is operating alongside a new system that is neither completely established nor comprehensive. Therefore, the old and the new system coexist, and they function concurrently. In the economic area, the market is in the process of development, but the residue and residual authority of the planned economy remains. In the administration area, the shift of governance structures has just begun, however, the previous habits of traditional administrative management remain dominant. In terms of legal construction, the legal provisions upon which government, enterprise, and individual behavior are conditioned are in the process of transition and regulated market conditions are far from comprehensive. At the same time, enterprises that should be regulated are still conditioned to being managed under administrative orders and do not possess strong incentives to comply with regulation. The irregular contours of demand facing power systems mean that power regulation can neither simply follow management measures and approaches applied under the previous planned economy, nor resort to the management measures and approaches reflected in mature market economy overseas. At the moment, the power system must take factors related to social context into consideration, integrating the functions of trade management and market regulation, working with “two hands” and “firmness at two ends.” Yet in practice, the system which continues to display features of both semi-planned and market economies, falls short in practice as the distinction between policy and regulation remain underappreciated. As the functions of trade management and regulatory functions are not organically connected, the result has been that regulatory functions have been organized in a manner reflecting insufficient institutional authorities and ineffective regulatory instruments to carry out regulatory mandates. This situation explains how an important source of regulatory powers lost its effectiveness.

Third — insufficient knowledge of important means to establish large-scale regulatory institutions — “major reform” is oftentimes the product of “major crisis.” Among the previous manners in which regulatory institutions have been established in China, most are considered to fall within the categories of crisis- and passive-modes. However in actual practice, these regulatory institutions have resulted from rushes to upgrade the powers of the relevant authorities when faced with market chaos and accidents endangering safety. In retrospect, the creation and historical evolution of domestic regulatory institutions covering coal mining safety, industrial and commercial management, environmental protection, quality regulation, and financial regulation have been established under such conditions. The establishment of regulatory institutions as a result of crisis- and passive-mode events is considered among the most powerful means of reform, and is most likely to be detected in the roots of all modern day reforms. (day 1)

The fundamental industrial management system and institutional arrangements in China are usually founded on natural transitions and adherence to conventional systems and institutions (such as the Ministry of Railway, General Administration of Civil Aviation of China, CAAC), or on the scope of conventional systems and management for adjustment and change (such as Information Industry Department, State Post General (see Table 1). This manner of organizing institutions with the regulatory system continues because, on the one hand, no fundamental changes have occurred within the basic management and operation of these institutions within the system, which have already achieved mature patterns of working methods and operations. As a result following standard procedures is convenient and doing so normally allows operations to run “on-track”. Under this scenario, little institutional reflection is required regarding what should be done or how it should be done. Feedback loops are not well integrated so efforts varying levels and their relative impact are hard to gauge. As a result the utility of jobs is also opaque. On the other hand, since these institutions have existed for quite some time, their scope of work and division of work responsibilities are specific, thus they are more likely to be understood and appreciated by the general public, and the public can more easily formulate a conceptual

understanding of the work and functions of these institutions. Furthermore, there are types of institutions, such as the securities regulatory commission, which have been established to reinforce regulation as an *ex post* measure to cope with crises after the first securities markets were established and began to function (eg the Shenzhen securities market crisis in 1992). The manner in which the Securities Regulation Commission was established is typical of the crisis-mode of reform in which the public and community easily understood the necessity for establishment. Additionally, experiences and lesson learned from the operation of securities markets in recent years has made developing the context of its work following its establishment very clear, and locating the rationale for its efforts is easily accomplished. As a result, the functions and effects of its work are easily understood, and its institutional function and position can be well accepted and recognized by the community and within that economic sector.

Being different from other infrastructure industry departments, and the management system and system arrangement of the Securities Regulation Commission, the system and regulatory institution for the Power Commission are not pre-designated. The Power Commission was itself established from outside the power sector, and did not simply evolve or transform from previous institutions within the power sector. Furthermore, the practice of regulation under a market economy within the government administration of an infrastructure sector is brand new and thus no precedents can be reviewed for guidance. The most prominent features of the Power Commission are its preventive functions, innovative institutional mandate, and its institutional neutrality. However, this context reflects operational difficulties with respect to its institutional role, which might not be easily understood by the private and public sectors. The impact of regulating power would not be concrete *vis-à-vis* the general public. Since effective preventive measures have been implemented, the regulatory systems for power can already assist in preventing problems from becoming crisis. Efforts are also under way to address implicit defects and problems within the power system. From the perspective of practical benefit, the regulatory systems for power is designed to optimize social benefit; however, due to the relatively intangible effects of regulation, the regulatory system for power is not easily understood and appreciated by the public and private sectors, which constrains the power and influence of the Power Commission. Third, since power is one of the very first sectors in the area of infrastructure services that regulatory reform has been introduced in this manner, no precedent can be reviewed for guidance, and progress is being undertaken without a clear roadmap. As a result, the “what and how” of power regulation along with the timelines in which measures are to be implemented can only be developed in practice. Yet the occurrence of any problems that do affect the work of power regulation, will serve to create a bias against appreciating the value and importance of power regulation, and sometimes even cast suspicion on such work.

Finally, the fact that the Power Commission was established externally would appear to place this institution in a favorable position to guarantee neutral regulation. Nonetheless, because the institution has no previous experience with the practice of regulation, it will meet adversarial influences as it enters the field, which will affect its neutrality, and in turn serve to constrain the successful development of power regulation.

Table 1. A comparison of institutional arrangements to regulate power generation

Natural inheritance mode (Ministry of Railway、CAAC)	Crisis-contingency mode (Securities Regulation Commission)	Initiated-design mode (Power Regulation Commission)
<i>System model and management way remain the same</i>	The necessity of organization establishment is easily appreciated	Necessity of organization establishment is not easily appreciated
<i>The maturity of the model and work method</i>	Work approach clear, and rationale for efforts specific	There is no precedent upon which to develop institutional functions, thus functional development is dependent on trial and error
<i>Follow the track, and operate normally</i>	The impact of work and functions are easily observed	The functional mandate as a precautionary policy regime makes work relative intangible thus making achievements also intangible, not easily noticed and under-appreciated
<i>Position and function are easily understood and appreciated by the general public</i>	Institutional position and functions can be easily recognized and accepted	Any problems would likely generate a negative public impression of the institution and even suspicion

Fourth — the problematic area of understanding provincial barriers, and the expanding influence of provincial barriers — significant provincial barriers to trade are a the major defect of original power system, and it is also the major problem that reforms of the power system will need to address. Provincial barriers can be found in two respective areas: first, in terms of priority that industries must accord to the purchasing power from provincial power generation plants, thus limiting the choice to purchase lower-priced power from other province; and second, each province is required to maintain capacity to generate sufficient power for its own use in the event of power shortage, and such power is not to be sold or exported to other provinces even where high prices are offered. Inefficiencies created by this dual-barrier system include: first, that it hinders the optimal distribution of power generation resources, and second, it is detrimental to efforts at lowering power expenditures, thus standing against potential benefits to power consumers; and third, it protects power generation based on high-coal consumption technologies, thus standing against the optimization of the national power generation structure. Barriers to inter-provincial trade in power should be dismantled. However, questions remaining unanswered include what types of measures should be taken to break down provincial barriers, and whether “it is necessary to abolish the status of legal entity held by provincial power companies in order to break down provincial barriers, especially in light of the fact that the Power Commission cannot itself be established at the provincial level.” Nonetheless, perspectives of the kind are not coherent with our current stage of industrial development or the actual scenario we currently face. As we analyze the causes of provincial barriers, the first reason for their existence is that of the systemic factor. Since power generation plants are not yet separated from distribution networks, companies supplying distribution networks make use of monopoly power to create profits for power generation plants in which they hold shares. A second reason is the market factor under which regional markets are not yet well integrated and competition regulations designed to break down inter-provincial barriers have yet to be established. To break down provincial barriers, several measures as follows can be taken: 1. implement a separation between power networks and power generation plants, some efforts are already under way in this area; 2. establish a fair and open wholesale market for power, and encourage “liberalized trade” between provinces; 3. reform market regulations to break down provincial barriers, and encourage liberalization of power trade between provinces, and institute priority purchasing for lower-priced power by power companies within substantial legal articles, and have them codified into computer software to support market competition and trade through computation. New rules should support competitive markets, market rules and market technique support systems, and should be employed to guarantee fair competition within the market and to address the role of human interference; 4. reinforce market regulation, guarantee fairness and transparency of market transactions, and protect the legitimate rights of every stakeholder within transactions. If these measures can be employed, they could support the removal of trade barriers between provinces. In light of the above, provincial companies, sub-companies and provincial regulatory

institutions established by each province are not the root cause of provincial barriers, and would not thus be insurmountable barriers against fostering inter-provincial trade. We find in addition that the perspective of linking the establishment of provincial regulatory institutions to breaking down provincial barriers to trade is not sensible. On the contrary, the effects of provincial barriers have already been stretched to the extent that they render the design and organization of regulations incompatible with the current context. The implication for those against establishing regulatory institutions at the provincial level is that the regulatory institutions at the provincial level fall short in terms of regulatory quality. The serious shortage of such front-line regulation organization has, in reality, invalidated their regulatory institutions.

(2) Power monitoring system design flaws and deficiencies include a management system that is unable to address the existing 24,000 problematic regulations, or the actual structure of the electricity market in a manner that maintains the integrity of the monitoring work and improves regulatory efficiency.

Of the power system reforms implemented in 2002, one can consider that substantial steps have been taken in terms of reform compared to how the government managed power in the past, and in the establishment of a modern regulatory system for power. However, as limited by historical conditions at that time, this reform to build a modern system for power regulation remains incomplete. Indeed, due to these constraints, it has not achieved the goals for which it was established and significant defects remain within the system. (day 2)

One of the defects is that of the horizontal distribution of institutional functions that has failed to overcome the defects of conventional system including: multiple approaches to regulation, diversified management, and overly tolerant policymaking and excessive laxity on the functional scope of institutions. Thus, the previous system of diverse and overlapping regulatory frameworks remains. Presently, the departments remaining competent over such regulatory functions include the National Reform and Development Commission (hereinafter “NDRC”), National Resource Commission, Ministry of Finance, and the Power Commission, while regulatory functions related to social objectives have basically remained under the same departments as under the pre-reform division of labor (as seen Table 2). Such systemic arrangements can, at initial stages of reform, function to support stability and continuity, and can help avoid excessive swings within the process of reform as well as possible signs of regulatory gaps and incompetent regulation.

However, in comparison to these merits, defects related to multiple regulatory approaches and diversified systems of management are even more prominent. First of all, the multiple approaches to regulation have fractured the supposedly comprehensive power regulatory framework, and has splintered the implementation of power regulation, thus significantly impacting the effectiveness of power regulation. Since power production is conducted simultaneously in terms of generation, delivery, output, and utilization, and given this feature exists in temporary equilibrium, every enterprise is an organic part of the power system, and thus the producer at every node relies on the safety and efficiency of the entire power system. Due to the intricate and delicate relationships characterizing the power industry, the function of power regulation must be consistent. In other market economies, power regulation institutions are often independent, and some are affiliated to government departments. But they do have one thing in common which is consistent with their function, and it is that the content of regulation covers market access and market operation as well as the monopolistic powers of price, cost, and quality which are held by power enterprise, and overseen by the regulatory authority. But now the scenario is that the functions of regulation are fragmented, overlapping, and reflect multiple policy approaches. As a result, those in charge of power tariffs are not responsible for the cost and service quality, and those in charge of market operation have no authority over power tariffs. Where breakdowns occur, no one is responsible, and no one can be found responsible. Such inconsistencies in responsibilities and authorities can mainly be attributed to the fact that regulatory functions are scattered and the functions themselves are allocated among several departments. The result has been overlapping and inefficiently functioning departments, each generating mutual constraints upon each other, thus forming a scenario of co-existence reflecting “lack of authority” and “stepping-over of authority” in regulation. Regulation operates as if everyone is supervising when, in actuality, no one has authority to regulate. Second, only the NDRC holds authority over market access as well as price regulation. Thus, the insufficient authority of regulatory institutions and regulatory behavior result from the lack of access to two of the most important regulatory tools. These deficiencies are compounded by the powerful habitualness of the conventional system under which regulatory institutions have direct

administrative management over resource allocations. Insufficient regulatory authority is a serious challenge, and can easily lead to a situation in which regulations applied by a regulatory institution are merely formality. This is a situation in which regulations are alive in title only, thus critically affecting the effectiveness of regulation. Should a regulatory institution be sandwiched between the powerful macro-level management departments of the government and influential state enterprises, it would be difficult for regulatory institutions to make substantial contributions.

Table 2. A table comparing the distribution of regulatory functions before and after power Reform

Regulatory Function	Before reform	After reform
<i>Price regulation</i>	National Planning Commission	Dominated by the National Development and Reform Commission, and Power Regulation Commission participates in part
<i>Investment approval</i>	National Planning Commission	National Development and Reform Commission
<i>Market entry approval</i>	National Economic and Trade Commission	Power Regulation Commission
<i>Service obligations and quality</i>	National Economic and Trade Commission	Power Regulation Commission
<i>Law-enforcement over power administration</i>	National Economic and Trade Commission	Power Regulation Commission and Local Economic and Trade Commission
<i>Demarcation of geographic area of power-supply</i>	National Economic and Trade Commission	Local Economic and Trade Commission/Power Regulation Commission
<i>Approval of new technologies</i>	National Economic and Trade Commission	National Development and Reform Commission
<i>Technical and quality standards</i>	National Economic and Trade Commission	National Development and Reform Commission
<i>Regulation of financial system of enterprise</i>	Ministry of Finance	Dominated by Ministry of Finance, and Power Regulation Commission participates in part
<i>Regulation and management of national assets</i>	Ministry of Finance	National Resource Commission
<i>Environmental regulation and management</i>	State Environmental Protection Agency	State Environmental Protection Agency
<i>Approved scope of enterprise operation</i>	Industrial and Commercial Management Department	Industrial and Commercial Management Department
<i>Standards and measures for energy</i>	Technical Quality Regulation Department	Technical Quality Regulation Department
<i>Safety regulation</i>	National Economic and Trade Commission	Power Regulation Commission
<i>Public service</i>	National Economic and Trade Commission	Power Regulation Commission

Second, the new regulatory system reflects in its systemic design of vertical regulations, insufficient consideration of actual market structures and also departures from conventional administrative zoning. According to the stipulation of document No. 5, “The Power Commission should be established upon vertical system, and it should assign its representative to the regional power network company and power distribution and transaction center.” The arrangement of such a regulatory system is consistent with conceptual approaches from the early-days of power reform. Opinions and views solicited for the power reform project on the market structure included a proposal to break down provinces into the following entities: northern China (including Shangdong), north-east (including east of Inner Mongolia), north-west, eastern China (including Fukien), central China (including Chongqing and Szechuan), and southern China, and establish six power network in the form of limited companies or limited liability companies under a national project for individual listing and implementation. The regional power network company should be based on the actual context and organizational management of legal enterprises under the development of the power market, and reorganization should be

based on existing provincial power companies (including their branch and subsidiary companies), which are responsible for local and compatible power transmission and delivery services. However, the market structure has not been adequately addressed within the bureaucratic processes contained within each of the power reform projects, while the status of regional power networks as legal entities have not been realized (on the contrary, the function of the regional power networks are in actual practice diminishing consistently). However, the design of the regulatory system has not been conducted with corresponding adjustments to fit market structures, and the result has been a poor fit between the geography of the regulatory system and actual market structure. The kind of regulatory system (this is the fundamental principle that the design of regulatory system should adhere to) should correspond to the kind of market structure. The fact that horizontal systems are designed mainly to fulfill the functions of market regulation, including the administrative scope for regulation at the levels of subsidiary organization, local (city), county (city) or any subsidiary in most of the provinces (city, district), means that constraints are placed on the development of regulation and its efficiency is lowered. Most of all, the laws related to power administration are ambiguous, and their authority is insufficient; as a result, the vacuum of management observed results in substantial difficulties for regulatory institutions and their conduct of regulation.

However, bypassing provincial governments within the context of the conventional administrative management system and establishing an institution with comprehensive jurisdiction as in the case of the People's Bank of China is considered to be too idealistic. As power is an industry that is closely related to local economies and lives of the people, such an idealistic design is a departure from the reality of the power industry, and is not suitable for implementation within the social context of China.

(3) The operation of the power regulatory system requires effective reform measures from the government, and if these measures are not carried out as scheduled, significant delays would accrue to the construction of power market, the construction of legal provisions, the change of government functions, and the reform of state enterprises. As of such, it would drastically constrain the ability of the new system to function.

Regulation is an important measure by which the government manages the economy under the market economy, and it requires certain objective conditions for it to function. Basic conditions that support the smooth operation of a market economy under state regulation include: a healthy legal system, an effective law-enforcement system, a comprehensive set of market rules, and an independent market with some level of autonomy from government intervention. Since the reform of power regulation requires these compatible measures, and these basic conditions are not found within the current reforms, it is a matter of course that the regulations cannot function as they should.

First of all, since the construction of the power market is progressing slowly, there is actually “no regulation to work on” in power regulation. According to the design of document No. 5, most power generation enterprises will need to bridge regional power networks in order to sell power across networks for the formation of a regional power market by the end of phase “15”. However, “man plans and God designs”. After June of 2006, the once sufficient power supply was exposed to rapid growth in the demand for power as the national economy grew at a fast pace, and most of parts of the country are confronted with power stoppages. Such conditions have focused the attention of the government and communities on securing short-term supplies of power, an objective which has been pursued *via* a number measures, such as the construction of regional power markets, which cannot be implemented successfully as planned and so the reform cannot be completed as scheduled. At the moment, regional power markets remain at the trial and simulation stages, and are far from achieving mature market transactions. Since there is actually “no regulation to work on” in power regulation, it is unlikely to enlarge its influence based upon the implementation of market regulation (day 3).

Second, since the revision of laws and regulations regarding the provision of electricity is seriously behind schedule, supervision by law can be likened to “water without sources” as regulation by law is the critical component of power regulation that makes it different from conventional administrative management. Based on its original design, the revision and formulation of relevant power laws was to be accelerated once the Commission was established. The revision of the “Electricity Law” — the fundamental law of trade that is relevant to the basic economic principles of supply and demand of power — was included in the enactment plan

of the National People's Representative Assembly for legislation; it was however not enacted before its deadline. In addition, the revision of other laws such as the "Power Network Adjustment Regulations" and "Power Supply and Employment Regulations" and other administrative laws related to power were also hindered, and their revisions ended in stalemate. This situation has generated conflicts between legal provisions governing the regulation of power during the period after the reform project in terms of institutional functions as authorized by the State Department and previous legal provisions on electricity, which are primarily the "Electricity Law," "Price Law," "Power Network Adjustment Regulations," and "Power Supply and Employment Regulations." Since current power regulations lack support from legal provisions of a level higher than the "Electricity Law", they are oftentimes placed at a disadvantageous position due to their lower legal status, particularly when they conflict with previous legal provisions (*e.g.*, in the areas of demarcation of business area of power supply, management of permits, and power network adjustment regulation) regarding power regulation institutions, based on the provisions of power regulation rules. This situation has significantly impacted the progress of power regulation.

Third, the fact that the functions of power administrative management still rest with the government has greatly constrained the progress of power regulation. Due to the fact that power regulation reform of our country was established and began operations under a conventional administrative management system, the decision was made that the reform of power regulatory system should begin with the government. If the government continues to employ conventional planned measures to manage the power industry and does not withdraw from the administrative distribution of power resources, the premise that power regulation should support progress is a misnomer. Compatible measures of conditions for the work of regulation must be provided for regulatory reform to achieve tangible effects, in particular those government departments of comprehensive economic affairs that are closely related to power regulation should have shifted their institutional functions accordingly. In such a way, these departments should transfer micro-level responsibilities to the regulatory body, and themselves focus on macro-level control and policy formulation, thus reflecting the separation that should exist between policy and regulation. Doing so would help to bring forth benign processes of interaction between administrative system reform and power regulatory system reform. However, the actual scenario has occurred in a contrary manner. At the same time that the power industry introduced government regulation, the comprehensive departments of government have not only worked according to the approach of reforming administrative management system and adjusted its functions, but have in fact taken the name of strengthening regulation as means to retain the primary functions of price regulation and expanded their functions to into new areas. Furthermore, these departments not only formulate policy, but also issue micro-level regulations, thus introducing new complexities into the interaction between policy and regulation. Such actions have fragmented the division of functional responsibility within regulation, and reduced the authority of the Power Commission, as a result, it has greatly affected the authority of the Power Commission as well as its power to supervise and constrain. But the problem now is not that the authority of the Power Commission is overwhelming, but rather insufficient; it is not that it will over-regulate, but rather under-regulate; it is not as if it can regulate a captive market, but rather that its regulations are rendered hollow. Regarding the practices for the operation of power regulation over the last three years, the strong approach by administrative management will, if a economic activity is at the same time governed by two different kinds of management including conventional government management and government regulation of the market, inevitably reduce the effectiveness of regulation. Without the support of compatible and relevant administrative measures for support, the effect of power regulation will largely be downsized if we merely count on power regulation to achieve its designated work alone and unsupported.

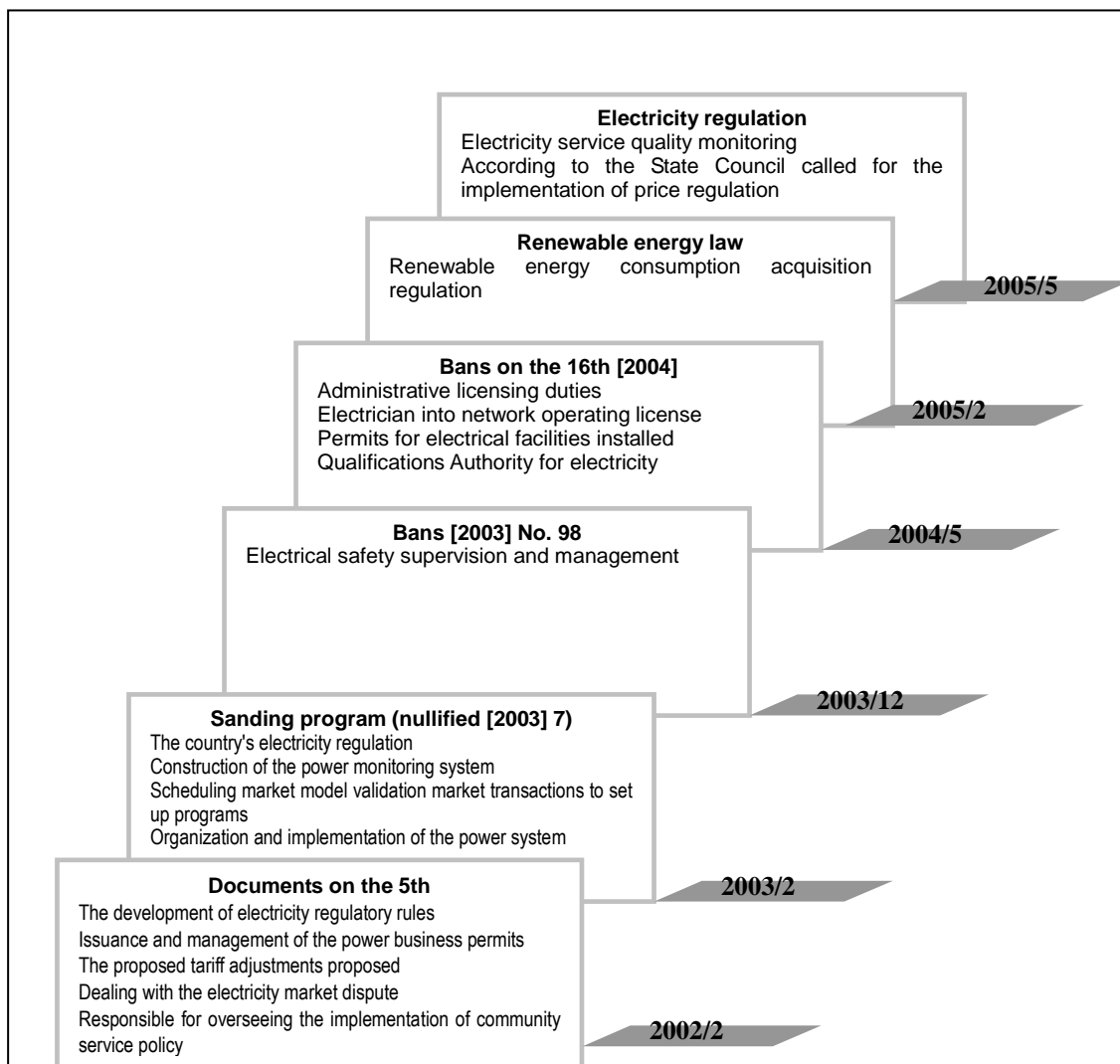
Fourth, the reform of state enterprises has not yet been implemented, and this has intensified the difficulty of regulation. Theoretically speaking, the enterprise of monopolized management is an entity with independent profit as its integral significance, because its independent pursuit of profit is enabled by its independent status. Since such enterprises can operate according to their own volition, the government would then need to exercise control. If such monopolized enterprises were not independent entities but affiliated to government institutes, the government would not need to exercise control but operate it as it wishes; the government could simply direct. Different from power industries in the western world, which are primarily composed of private enterprises, the object of power regulation is mainly state enterprises, and most are large-scale state enterprises. These enterprises are not only large in scale, but because they function specifically within the context of

national economic and social development as well as in the life of the people, and also because of the historical background of management systems integrating policy and enterprise, these enterprises have not yet, in genuine significance, become independent entities within the market. A large number of enterprises and entrepreneurs still retain administrative ranking, and some are considered middle-level ranking officials. Because of such a special context, the difficulty of power regulation has been intensified in our country, and affected the function of power regulation to effect progress. Under the scenario that some state enterprises retain a dominant position, and sometimes take countermeasures when faced with regulations, these enterprises do not work well with and even go against government regulation, resulting in difficulties when implementing regulating measures. As such, state enterprises effect as must as they are affected by regulation.

For instance, the Power Commission has encountered similar problems in recent years regarding requests for information from entities under regulation. Second, under the existing system, there is an intricate and intertwined relationship between the object of regulation and the government, thus the objects of regulation often bypass the regulatory body by going directly to the government for assistance. As such, regulatory policy is exposed to dual pressures from both regulated enterprises as well as government departments (including government departments in charge of comprehensive economic affairs, the national assets department, and the levels of regional government), which sometimes threaten the effectiveness of regulation itself. Third, the State Department is, for the time being, the largest regulating body of our monopoly industries (including the power industry), and enjoys final authority on regulatory issues. In this regard, it can facilitate the ability of regulating bodies to enforce sound and fair legal provisions, and also exercise some kind of constraint regarding the work of regulating bodies. However, this reality has, at the same time, affected the authority of regulation as some supervised enterprises can exert influence through relationships and obtain support directly from the State Department for certain market behaviors.

(4) With the increase of power regulation activities as well as the enlarged scope of regulation, the reliance on conventional management methods and concepts combined with insufficient experience within the regulating body itself, have become major reasons that the regulatory system is not functioning as it should.

Figure 1. Chart of changes in the delegation of power regulation authorities: Incompatibility between institutional size and functions



The functional design of the institution and allocation of personnel resources making up the current power regulation body were conducted based on document No. 5[2002] regarding national development from the very beginning. However, for the past three years, the scope of power regulation has, based on the assessed needs of the objective scenario, been enlarged from the previous power enterprise within individual provinces to all power enterprises in the People's Republic of China, and the functional mandate for power regulation has increased from the previous five to ten items (Fig. 1). However, changes have not been made in accordance with the structure of the institutional and personnel (objectively speaking, the adjustment of organizational structure and personnel takes some time and is not likely to be reformed anytime soon). This condition has led to insufficient manpower at the front-lines of regulation and has largely constrained the effectiveness of regulation. (day 4)

Our country is a state that is endowed with a culture of abundantly rich assets, and the belief and concepts of conventional government continue to exert an impact on the actual practice of the regulatory system. Take for instance, that there has been the tradition of rule by man for thousands of years, and in the deepest part of our psyche the population considers authority more important than law, and so authority is held by many to be more important than rule of law and man. Thus, although there is an underdeveloped concept and tradition of rule of law, rule by authority carries the greatest weight. Under such a context, the effect of regulation as a new means by which the government manages the economy is different from conventional administrative management, and is certain to be impacted during the initial period in the sense that most would consider that the new means of governance (regulation) does not work as well as administrative management. Viewed from such perspective, the enhancement of regulatory effectiveness should rely very much on cultivating the comprehensiveness of social and legal consciousness. Furthermore, Chinese culture turns to ethics and morality for the management of a country, which is another typical example of society that relies on interpersonal relationships. Indeed, many habits of smooth problem resolution are also based on interpersonal relationships, which again has much reduced the impact of legal provisions on regulation, and rendered the practice of regulation different from the legal provisions governing it. Also, there are some underlying rules within Chinese culture that have affected the work of regulation, mostly regarding issues affecting the individual interests; in many situations, individuals concur orally but actually engage passive resistance. Some relevant departments would concur, support, and express consent as they know that regulation is reform to monopolized and disagreement would be seen as standing against reform; however, should these departments run into substantial problems the spectrum of excuses and reasons would be offered, in other words, what is reflected in power regulation is that people can accept power regulation in name only but not in reality, and they are willing to maintain the facade of power regulation but not its foundation. Some existing legal provisions should be considered out-of-date and should be revised, but these provisions would again be employed as a protective shield for departmental interests when needed.

Besides, in accordance with the presumption of Chinese culture man should consider ethics, abide by discipline, and protect group interests, and the design of the system is mostly implemented from such perspective. However, when coordination among several departments is involved, argument and conflict over interests are often seen as well as competition based on explanation and reason. In addition, there has rarely been a tradition of precise management or advanced management methods, but management according to scenario and interpersonal relationships based upon ethics, while regulation is mostly about dealing with the problem of reasonableness, with great reliance on flexibility. On the other hand, what regulations conducted overseas deal with are scientific problems, rather than problem of reasonableness, normally, with a series of benchmarking applied afterwards. It is in this light clear that certain problems must be overcome in order to integrate modern methods of regulation within Chinese culture.

The direction in which power regulation is developing coheres with modernization trends as it has established the first body set up to regulate infrastructure services within our country, as well as provided a demonstration system for power regulation over the last three years. In order to address the effects reflected in the demonstration, it is necessary to confront the problems that exist, and the causes of these problems are multiple, which cannot be fully denied nor ignored. Improvements would have to address the actual social context of our country so as to enhance appreciation, resolve the defects found in the design of regulatory system, accelerate legal construction and reforms of relevant compatible measures in preparation for the long-term battle to secure a better functioning regulatory system by which to facilitate better and faster development of power industry. These are necessary requirements to complete power regulation system, and also objective needs to explore for reforms to the regulation of our infrastructure service. It should also be the objective need of the government to reform its functions as well as its administrative management system.

2. Policy suggestions that would render the power regulatory system complete and comprehensive

With a legal foundation in place, it is now possible for the work of reform to be effectively undertaken. The implementation of the power regulatory system over the past three years included major adjustments to the power regulatory system in order to realize fundamental changes to the government's regulation of power and the manner in which it manages the power sector. These changes have effectively demonstrated the function of power regulation, and helped to facilitate the healthy and efficient development of the power industry.

2.1. *The necessity of effectively enhancing knowledge for power regulation*

Reforms to the power market have raised a fundamental and basic question in terms of whether there should be power regulatory system with regard to the issue of power regulation, and whether such a system should be premised upon furnishing a comprehensive power regulatory system.

1. The joint experience of at the time undertaking market reforms in the power industry and establishing a specialized regulatory institution to regulate power is one "that was written" by many developed and developing countries.

As can be seen in international examples, that all of the countries that have instituted market reforms to its power industry have, as a rule, established specialized power regulation bodies, as well as power regulatory systems. The United States is the most developed country of the world's market economies and also the country that has been regulating power for the longest period. The United Kingdom and other European countries have, for a long time, relied upon state enterprises as a form of monopolized management for its power industry. Throughout the 1980s, as power industries around the world were being reformed and privatized, the United Kingdom emulated the regulatory system applied by the United States, and established a power regulation department, based upon legal, transparent, and professional methods to conduct fair regulation of the power industry. And the reform of United Kingdom's power market has been taken as a model by many countries around the world. Within the discussion of power market reform around the world, New Zealand has, undoubtedly, provided a lively example of power regulation. As early as the 1980s, the government of New Zealand abolished its power regulation body (it is the only country in the world that has experimented with such a model) as it implemented power market reforms. However after more than twenty years of experiment, the New Zealand government re-instituted the power regulation body — the New Zealand Power Regulation Commission, following a power crisis in 2002. Presently, with very few exceptions, most countries around the world most have established specialized power (energy) regulation bodies, which is an approach that that appears durable *vis-à-vis* changing social and economic systems as well as social consciousness and ideology.

2. The consistency of problems occurring in other industries throughout the country is related to defective regulation. We can say in this light that viewed from the other perspective, power regulation is necessary. Effective regulation is the objective as well as the guarantee, that reform of power market can be smoothly facilitated to realize orderly and fair development.

Since the initiation of reforms and liberalization, our social and economic life has been impacted by incremental market reform as the basis for reforming the economic system to deepen its market orientation. Incessant improvements to the socialist market economy have continuously enhanced the degree to which nationals within the domestic economy are oriented towards the market. Nonetheless, when market reforms are conducted in some industries, previous government management systems and methods have often not been compatibly adjusted. As a result, government regulation reflects serious stalemates, resulting in movement from one extreme (too many constraints and too rigid) to another (serious inadequacies in regulation). The results have sometimes been marked by market chaos and at other times an increased frequency of accidents, while consumers interests have not been effectively protected, and scenarios never progressing beyond the vicious cycle of chaos created by liberalization and the fading out of rigid management.¹ In recent years, problems

¹. The management regulations of the planned economy, though sacrificing efficiency, continue to

have occurred in education, hygiene, and coal-mining mostly because of inadequacies in, and the lack of, regulation by the government. These situations have resulted largely because modern regulatory systems were not established to facilitate reform, and the government itself did not step in to regulate the market during the reforms. Recent experience substantiates the fact that for certain products, liberalization may be the worst arrangement in the absence of a system for regulation. From the perspective of community as a whole, the cost of insufficient regulation is far too steep, and the aftermath accidents in terms of vast of social costs created can be so great as to call into question not only the reputation of the market, but also its beneficial impacts on the living standards of the population. It has also curtailed faith among the population towards reform, and unnecessary hindered the progress of reform. The crucial reason that chaos and accidents in the power industry have not reached levels of public intolerance that they have in the coal-mining industry, is that the State Department of the central government has long pre-planned for the potential contingencies of reform, and taken compatible and precautionary measures within the management system on its own initiative (day 1).

Different from other markets, barriers to access in the power market are relatively higher than those for others. The long-term unity of management over power networks and power generation plants has made separating the two very difficult and has made developing effective power markets challenging. Thus, active regulation will be necessary in order to break down monopolies, to cultivate the market, and to “organize” competition. At the same time, the realization of efforts to facilitate development of power, to maintain market order, and to protect consumer and public interest will be dependent on regulation.

2.2. Fundamental principles of a comprehensive power regulatory system

Establishing a comprehensive regulatory system in our country would, on one hand, require adherence to the general rules of regulatory system, and on the other hand, require adaptation of the rules for our power industry which remains in the process of transition from a planned to a market economy, from monopoly to competition, and from conventional management of the government to regulation based on modern government.

1. Insistence on consistent regulation, responsibility and fulfillment of requirements related to institutional functions

Based on the current situation, the major responsibilities of the Power Commission can be considered in seven areas; 1. supervising the implementation of legal provisions on power and relevant policies of the government; 2. responsibility for formulating market rules; 3. responsibility for maintaining market order; 4 responsibility for supervising the safety and reliable operation of the power system; 5. responsibility for coordinating and arbitrating disagreements and conflicts; 6. responsibility for protecting the interests of consumers and all other stakeholders; 7 responsibility for nurturing the market and implementing power reform. The primary function of the power regulation to be fulfilled includes law-enforcement over the administration of power, power regulations, development of the power market, and implementation of power reform and other items.

The development of a comprehensive power regulatory system should be initiated by the establishment of a regulatory body with sufficient personnel and institutional resources to carry out the functions indicated above, based on the principle of consistent authority and responsibility, and seeking to implement each of the objectives of regulation set out by the government.

2. Insistence on the healthy development of power industry and benefits to consumer interests

Important benchmarks by which to assess the effectiveness of the power regulatory system are also important rules and basic principles for the power regulatory system as a whole. These include power development, guaranteeing safety, high-efficiency, reliability of power supply, and ensuring that consumers are able to enjoy the accomplishments of power development.

be considered effective in terms of governing industry

3. Insistence on current and long-term perspectives

It is on one hand necessary to resolve the problems exposed by current power regulation body and on the other hand necessary to link up efforts to resolve these problems with the administrative system and organizational reform.

4. Insistence on the fundamental guidelines regarding politics and enterprise as well as politics and regulation²

Should the power regulatory system of our country be based on the model of politics and regulation as one, or the model of separating politics and regulation? This is another major issue of principle that has to be resolved when developing comprehensive power regulatory system.

Politics and regulation in unity is to have the function of policy formulation and the function of power regulation exercised consistently by a single government authority. As for separation of politics and regulation, it is to divide these two functions from one institution by delegating them to different government institutions to exercise. Based on international experiences, there is no standardized or fixed model in which these two approaches coexist. Most countries choose to separate politics and regulation, and a few countries choose to have politics and regulation in one system. We can thus say these two systems are workable models for power regulation, and it is hard for one to say which is clearly better than the other. Therefore, we cannot easily say which would be more effective or result in optimal efficiency. As of such, exactly which kind of regulatory system is employed would depend on the economy and market development of the country as well as its political and legal environment. Furthermore, choices between the two will also be conditioned by the belief of the government institutions running economic affairs as well as the influence and limitations of its historical traditions.

². Implementing separation of politics and regulation is likely to stir up popular suspicion: if such a system becomes a standard design criteria for regulatory systems such as that for basic infrastructure industries such as mining, it would surely increase the number of institutions and personnel, and go in a direction opposite to the objective of streamlining institutions and personnel. However, such a perspective is one-sided. First of all, it is a misunderstanding and distortion to equate the objective of streamlining institutions and personnel with reform of government bodies (a typical example is the United States federal government; before WWII, federal civil servants total 30,000, but it now totals to 3 million). Streamlining is not the purpose of government institutional reform (this is only the specific situation in China for the time being). The purpose of regulatory reform is intended to resolve problem with the positioning of functional roles within the government, which stem from inadequacy, stepping-over of functions, and mislocation of functions. Stepping-over refers to situations where even a single employee in one department is superfluous; inadequacy refers to situations where personnel increases are necessary. Regulation is one of the new developments resulting from the development of the market economy, and it is a novel means by which the government runs the economy under the conditions of market economy, and it is a government function that must be strengthened greatly. Second, separation of politics and regulation does not necessarily enlarge government departments; as such system does not imply that every department of industry has to be set up with a compatible department of policy. A more common practice is for the policy approach towards various industries to have institutional responsibilities formulated by the comprehensive economic management department of the government or higher-level of government department (such as power, coal, oil, natural of the department of energy, or aviation, railway, water transportation of the ministry of transportation). Under such arrangements, the separation of politics and regulation would not increase the size of government departments, but may also benefit the streamlining of government (for instance, some of the current professional departments could be abolished). Therefore, the establishment of regulation body in the separation system of politics and regulation is not contradictory to the reform of administrative management system; it is itself an approach to reform of the government administrative management system.

Viewed from the context of our country, we can say that these two models are options. However, in a relative sense, to rely on a system of separating politics and regulation by establishing a professional power regulation body appears a more reasonable choice. Even if a comprehensive energy management organization is set up in the future, there is no need for it to be combined with the professional power regulation body because:

First, several major countries like the United States, the United Kingdom, India, and Brazil have established separately their energy management organization and regulation bodies. In these countries, the former is in charge of formulating energy strategy, planning, and policy, and coordinating relationships with each of the energy departments, while the latter supervises the market so as to guarantee healthy development and orderly competition within energy industry

Second, regulation is considered to be a micro-level economic function in terms of government economic functions, and it requires professional capacities on a daily basis. To separate micro-level from macro-level functions such as energy strategy and policy, it would be helpful to establish a new systemic context of “a government supportive of micro-level adjustment, a regulatory body supervising in accordance with the law, enterprises operating independently, and trade associations conducting self-disciplinary actions.” Under such a perspective, micro-level departments would be enabled to actually focus on developing strategy and planning, reducing functional overlap and administering interventions regarding micro-level economic activity. It would at the same time also represent an effective mechanism of checks and balances and oversight with real responsibility for the implementation of established government policy, thus realizing the goals of responsible government, limited government, and legal government.

Third, to an extent, a foundation for separating politics and regulation within the energy industry has been put into place. For the time being, the regulatory systems for coal and power have been established separately, and there is no need to return to the previous track of implementing politics and regulation of energy together.

Fourth, it is conducive for the regulating body to focus its efforts on enhancing effectiveness in the implementation of regulation. Loose implementation and law-enforcement is a key and recurring problem in domestic administrative law-enforcement. The separation of politics and regulation can help the regulatory body to focus on market regulation and administrative law-enforcement. Under such circumstances, it is better able to demonstrate its strength as a professional technical institute, and genuinely “supervise in accordance with what has to be done.”

5. Insistence on reforms accommodative to our social and cultural context

Power regulation is a new business in our country. On power regulation in our country, there is a commonality of regular power regulation as well as common disciplines that power regulation must abide by. Power regulation in China must also learn from advanced theory and practice from overseas. In addition, due to the particularities of our country, it is necessary to integrate the special social and cultural context of China to achieve an approach to power regulation with Chinese features. This is one of the fundamental rules gleaned from experiences with power regulation over the past few years, and also one of the basic principles that we must insist on in order to establish a comprehensive power regulation system. On existing problems found with our current operating system, working in conjunction with the social and cultural context of our country, any approach has first to be suitable for our socialist system, fully demonstrating the unifying power of party to lead the public, and working closely with the party to adjust and mobilize social power to recruit the participation of the public. Second, the approach must be suitable to demonstrating that the two separate features of our administrative system (*i.e.* central and regional) can adjust to it. Third, the approach must be suitable for our country and supportive of overall systemic transition, thus the development of the power market must allow for organic linkages to the commercial management and market regulation.

2.3. *Accurately defining functional boundaries within power regulation*

Addressing the question of what areas should the government supervise, and what areas should be delegated to the market and brokerage institutions will make up the foundation of the comprehensive power regulatory system, and is at the core of efforts to effectively deal with the relationship between the government and the market. Too much should not be expected of regulation in areas where the market is capable of resolving issues by itself, and such areas should be delegated to the market for resolution without hesitation. The regulatory body should not interfere with normal and regular commercial decision-making or the business operations of enterprises. It is only when the market mechanism is unable to bring about the effective allocation of resources, or in other words, only in the case of market failures that the government should conduct market intervention through regulation to rectify and improve defects in the market mechanism as well as intervene within the process of resource allocation. Areas in which regulations are likely to be necessary to address market failure in the power industry include those related to the delivery and distribution of power in relation to behaviors associated with natural monopolies, power market transactions, power safety, environmental protection, public services and other problems.

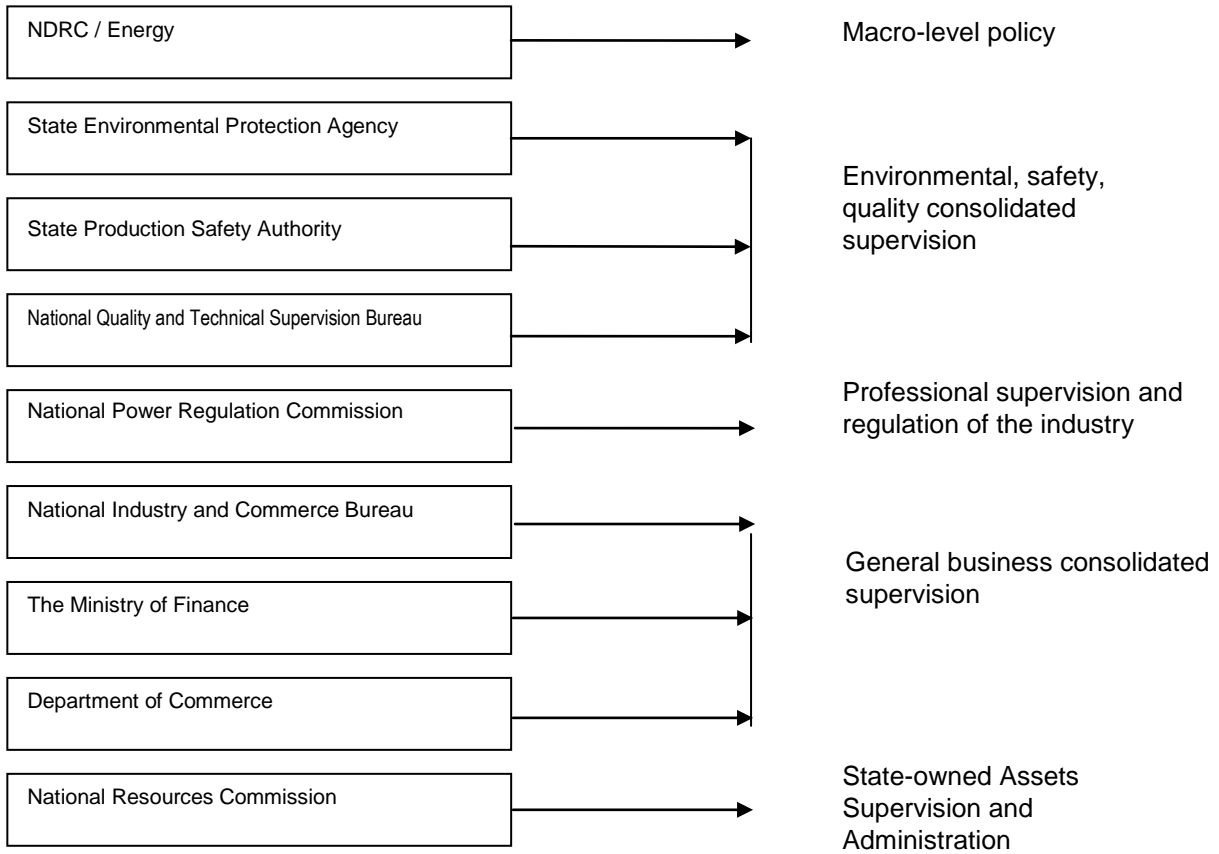
Power regulation functions include two major categories which are economic regulation and social regulation. The economic regulation of power is mainly comprised of: 1. regulating market access — this function mainly addresses the conditions under which market players can enter specific power markets, promoting fairness and non-discriminatory access to the power network, regulating power market quotas, and approvals for power network investment; 2. price regulation — this function is mainly concerned with administering fee-collections and fee structures for the supply and delivery of power services *via* networks, and also administering the price of network access formulated in support of market competition; 3. service quality regulation — this function is mainly related to regulating the quality of power supply and power energy, indeed the regulation of service quality is an important measure for protecting the legitimate rights of power consumers and public interests; 4. market behavior regulation — this function mainly addresses the “three fairnesses” relating to the allocative behavior of the power distribution and transaction mechanisms, supervising the implementation of state legal provisions and regulatory policy on market players, preventing market players from abusing market power, protecting consumer interests, addressing market conflicts, and resolving market disputes to protect market order. Presently, the economic regulation of our power industry also addresses two major responsibilities including nurturing the market and facilitating reform: it must break down monopolies and promote competition which will, to a great extent, rely on the realization of effective regulation. Facing powerful historical and market structures linked to natural monopolies, the regulatory objectives of breaking down monopolies and promoting competition are unlikely to be achieved by reliance purely on market forces. Second, the cultivation of the power market also requires effective regulation, as the power market is different from other market sectors in that it requires higher resource thresholds for entry as well as more sophisticated technological capacities. Market development in this sector is relatively difficult. For normal sectors of the economy, government liberalization of entry and pricing is sufficient to allow for a market system to develop. This is because market entry in sectors such as agriculture, light industry, and commerce is relatively easy and difficult to monopolize. However, this is not the case in the power market. It would be disastrous to believe that if the government merely surrendered its authority to determine pricing charged by power enterprises, that the power market would automatically develop and mature. Such a scenario would most likely result in a monopolized and captive market, which would be unable to effect the optimization of resource allocation and would be unlikely to achieve reform objectives. The power market needs the government to implement rules, employ measures to promote competition, and strictly supervise the operation of the market. (day 2)

The social regulation of power includes: 1. safety regulation — the regulation and management of power production and managing the reliability of power and other works; 2. regulation of regular service — the responsibility for ensuring regular and constant service and other obligations from power enterprises under its regulation; 3. environmental regulation — the responsibility for regulating to ensure that power enterprises comply with state environmental protection policy; 4. standards and quotas — the responsibility for formulating and implementing technical standards and quotas relating to power, and conducting related regulations; 5. regulating recycled energy — the responsibility for regulating purchases of recycled energy by power enterprises.

2.4. Re-establishing a powerful and influential power regulatory system

1. Conduct standardized and consistent regulation, and improve relationships with other government departments

Figure 2. Potential scenario after re-distribution of power regulatory functions



Currently, the government departments (NDRC or Department of Energy) are together in charge of power from the micro-level and macro-level perspective, and the power regulation body is in charge of power regulation and administrative law-enforcement. The responsibilities of the Power Commission and NDRC are clearly prescribed as approval of entry into the power market, price approvals for power, and power planning. The two major economic responsibilities including regulation of market entry and regulation of power tariff are still exercised by the NDRC and will gradually be delegated to the Power Commission as part of its institutional competence. After that, a uniform and dependable regulatory body having authorities compatible with its responsibilities will be established.

It is at the same time necessary to specify and to delineate the work of the power regulation in relation to that of: the Ministry of Finance in the area enterprise finance; the National Industry and Commerce Bureau in the area of improper competition; the State Environmental Protection Agency (EPA) regarding environmental standards and pollution emissions by power enterprises; the National Quality Technology Regulation Bureau in the area of standards and regulation of quality in technology, the State Production Safety Authority in the areas of enterprise production safety supervision and administration, and the National Resources Commission in the area of merger and restructuring of state enterprises. The quality of power regulation will benefit from clarifying these institutional and working relationships and gradually establishing the coordination and division mechanism among these institutes.

Following the reorganization of regulatory functions involving the power and other sectors of the economy, and in coordination with economic regulation, the social management of public affairs should be carried up by the comprehensive departments of the government or other departments in areas such as: coal, power, coordination of transportation, power planning, industrial policy, environmental protection, resource utilization, and policy formulation for public services. The Power Commission, as the coordinator of internal affairs within the power industry and having regulation and management functions, should have institutional duties covering: the market behavior of power enterprises, such as power plants; coordination among power networks; access to the markets; approval of power tariffs and regulations; maintenance of market order; power safety; measurement and evaluation; quota management of engineering; implementation of power system reform; and regulatory functions related to the realization and regulation of national power policy.

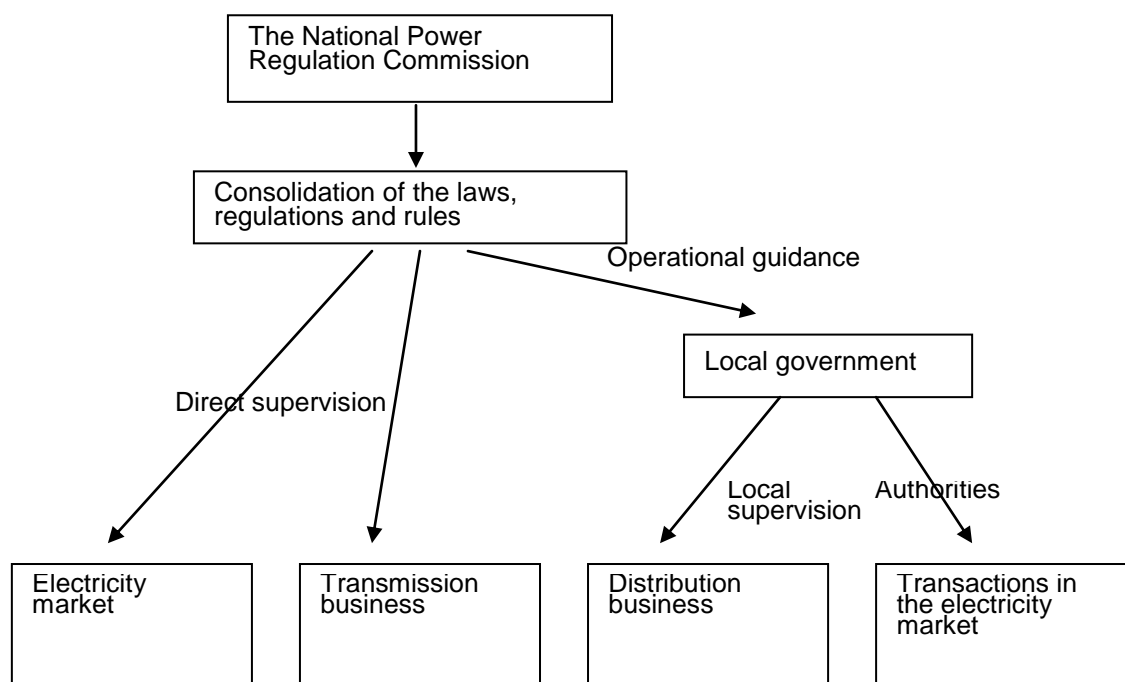
This systemic arrangement would overcome the defects of the current system of management characterized by: multiple regulatory approaches, diversified regulatory functions, and putting blame on others, implementing industrial policy within the power industry combining administration with production, and the existence of overly general rules on the separation of politics and regulation. It would thus bring the regulatory system within the international customs of regulatory system arrangements, and address problematic regulatory behaviors related to an economy in transition. This reform would also provide an important anchor in support of a regulation body that implements effective management, and balances the interests of the state, consumers, investors, and power enterprises. And also strengthen the effectiveness of regulation, enhance the efficiency of regulation, and clarify the functions of the respective regulatory bodies.

2. Improve the division of regulatory authorities between the central and regional government, and reconstruct a vertically integrated power regulation system

Power regulation involves the interests of hundreds of thousands of households, and is also closely related to the functioning of regional economies. The construction of power networks in our country has been historically weak, which is largely results from the fact that regional power networks are operating at a loss. Over the next 15 years, the power industry will require billions of dollars for the construction of power networks, but this need will be unmet if the central government is entirely responsible for the financial burden. A reasonable option would be for the central government to take on an oversight role, while regional governments work to initiate and establish regulatory relationships based on cooperative vertical systems of regulatory management with the central government. Under this approach, the power generation market and transmission networks for high-voltage power would be supervised by the central government, which should

guarantee market access, fairness in transactions, and the optimal allocation of power resources. Low-voltage power and the power sales market, as it is relevant to households within regions, would be delegated to regional governments for management so as to enhance regulatory efficiency, lower management cost, and strengthen administrative vitality.

Figure 3. The vertical structure of the power monitoring system

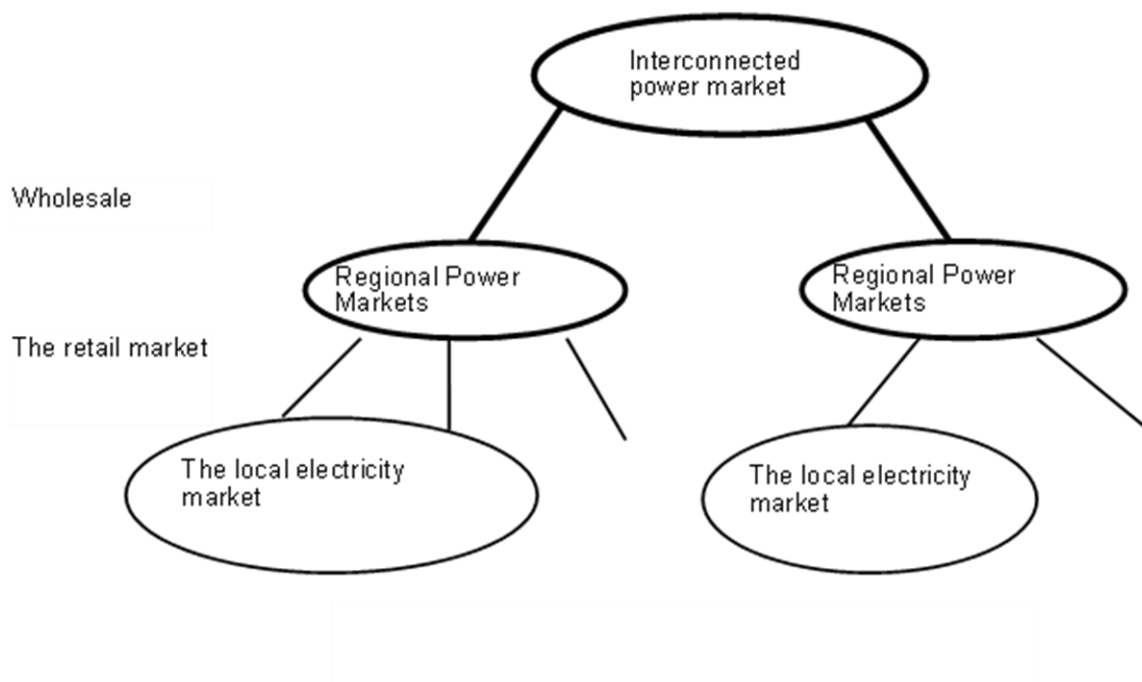


The four levels of the vertical regulatory system are respectively: the Power Commission, the regional regulatory institutions, the provincial regulatory institutions, and regulatory institutions below the provincial level. The Power Commission is responsible for formulating regulatory principles and rules nationwide, formulating the system for power permits, supervising the cross-regional power wholesale market, supervising cross-regional power transmission trade, and assisting cross-provincial and cross-regional trade. The regional regulatory institutions are regulatory bodies assigned to the regional power markets, and are responsible for regulating the regional power markets and the distribution of power within their assigned regional markets. Regional regulatory bodies assist the Power Commission in regulating regional power networks. Provincial power regulatory institutions are the subsidiaries of the Power Commission at the provincial level, and should have duties regarding the Power Commission and provincial governments, while accepting instructions from the Power Commission. Provincial regulatory institutions are mainly responsible for regulating power enterprise at the regional level, addressing organizational issues, regulating supply and distribution within the power trade, regulating the liberalization of power markets at the provincial level, and facilitating the optimal allocation of power resource at the broader level. Prior to the establishment and operation of regional markets, provincial power regulation institutions would develop capacities for carrying out the duties of regulating power transactions, demarcating areas below the provincial level in which to establish power regulation institutions based upon needs, and accepting vertical management from provincial regulatory institutions³.

³. As regional power market begin to operate, the regulatory functions of provincial power regulatory bodies will be reduced over time. Eventually, the provincial power regulatory bodies will shift institutional focus away from regulatory functions over market transactions.

Significantly, the horizontal management arrangements making up the different levels of vertically structured power regulation system would allow for the regulation of power tariffs and the regulation of market access to be centralized for vertical management by the Power Commission. Regional governments would no longer be responsible for regulating power tariffs and investment approvals, thus better enabling consistency and smoothness in policy administration.

Figure 4. Outline of the electricity market and its stratification



The vertical arrangement of power regulation system must be compatible with the system and structure of power market of our country (Figure 4), and accommodate to the features of the domestic power industry. The vertically integrated system is beneficial both for the central and regional governments as it allows for the active coordination of work by dividing regulatory authorities such that delineated authorities and responsibilities are consistent. Such an approach is furthermore beneficial as it facilitates the breakdown of provincial barriers, thus allowing for better optimization in the allocation of power resources, and guaranteeing the integrity of the power market. Most of all, it would support the achievement of common social objectives such as environmental protection, common tariff structures in urban and rural areas, and public service.

2.5. Further improve the comprehensive legislation for power regulation, and facilitate co-ordinated reforms

Reform of power regulation is an important component of power market reform, and the context of the existing administrative management system reform of our country is also significant. Experience resulting from practice over the last three years, has demonstrated that reform of power regulation will not in isolation be sufficient. Reforms must operate in conjunction with relevant and coordinated measures and policies. Therefore, improving the comprehensive regulatory system for power will be highly dependent on the following reforms for its smooth implementation and effectiveness.

First, the reforms must improve the comprehensiveness of regulations, laws, and market rules. The reforms must specifically define the rights and duties of power market players as well as the boundaries between the government and the market. The reforms must also articulate the duties and competencies of government bodies in power management, and accelerate revisions of the Electricity Law and other relevant laws.

Second, it is necessary to continue deepening reforms in state power enterprises. At the moment, the operation of our power network is tiered-model of state enterprises with subsidiaries, and power generation enterprises largely belonging to the state with national capital being the major stakeholder. In fact, most of the power enterprises in the cities are branch companies of provincial power companies, and lack independent legal status as well as qualifications to become market based entities. To establish the rules of the power regulation system, it is necessary to continue the deepening of state enterprises reforms so they can authentically become market driven enterprises. Deepening the reform of state-owned power enterprises requires the clear separation of power generation enterprises, transmission enterprises, distribution companies, and the enterprises that sell power, and the manner in which they are classified in laws and regulations. Second, it is necessary to conduct a restructuring of property rights including clear and consistent rules regarding such rights and responsibilities, and strict protection and smooth transition towards a modern property rights system. Monopolies held by one, or one major, stakeholder must be dissolved, and investors should be introduced to implement a diversified shareholding system. Third, it is necessary for state-owned power companies to establish a standardized corporate governance structure, and that a modern enterprise system must be constructed.

Third, it is necessary to accelerate the construction of a market system. The power market is the object of power regulation, and it expands the scope of power regulation, and enriches the content of power regulation. Constructing a power market means developing a price based system for allocating power resources. Notably, a positive correlation exists between the degree to which a power industry is reliant on market mechanisms, and the importance of regulation in governing that power industry. Therefore, it is best to accelerate regional market construction, and enhance the ratio of private supply in terms of total domestic power generated. The construction of market system will be facilitated by changes in the manner that the government manages power. Further reducing over-intervention by the government in resource allocation and price formulation, will better enable the market to meet demand by allowing for better assessments of the market conditions, including the scarcity of resources, and allowing for development of price based mechanisms, *e.g.*, to measure the costs of pollution. Accelerating the development of the domestic market for power will allow for the development of power regulation itself.

Fourth, it is necessary to accurately define the regulatory function of the government. Power regulation is an important component of reform in the government administrative management system, and its function is reliant on a change in the manner in which the government manages power. If the government continues to apply traditional planned economy style measures to manage power industry, and does not withdrawn from administrative distribution of power resources, the basis on which a regulatory system is supposed to function will not exist. Therefore, to guarantee reform with results, the government must provide compatible measures and conditions for regulation to work, especially by reforming the regulatory functions currently played by the comprehensive departments of government closely related with power regulation. Their regulatory functions must be limited to macro-level policies, regulations, and policy formulation, and must not interfere with micro-level regulation. Such an approach would support better and mutually beneficial interactions between administrative system reform and power regulatory system reform.

