

ISSUES RELATED TO THE IMPLEMENTATION OF CHINA'S ENERGY LAW: ANALYSIS OF THE ENERGY CONSERVATION LAW AND THE RENEWABLE ENERGY LAW AS EXAMPLES

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TABLE OF CONTENTS

Introduction	226
I. Raising the Questions.....	226
II. Difficulties in Implementing the Energy Conservation Law.....	227
A. An Assessment of the Implementation of the Energy Conservation Law	227
B. Analysis of the Causes	228
III. Challenges in Implementing the Renewable Energy Law	239
A. Formulating Complementary Measures and Further Improvement of Legislation and Policies	240
B. Supervisory System and Law Enforcement Mechanism.....	242
C. Awareness of the Concept of Developing Renewable Energy	244
D. Technology and Market Conditions	247
Conclusion	248

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† The translation of all Chinese materials are the author's, as is the responsibility for any inaccuracy in the translation. This article follows the Chinese practice of placing the family name before the given name. Therefore all sources cited in short form use the author's family name. The original Chinese text for most laws and their implementing regulations cited herein can be found on the LawInfoChina database located at <http://www.lawinfochina.com>.

INTRODUCTION

Focusing on the Energy Conservation Law and the Renewable Energy Law as examples, this paper analyzes and discusses the difficulties and challenges in their implementation and the root causes of these difficulties. This paper points out that the implementation of the Energy Law requires a complex engineering system involving the government, the market, and civil society participation. Beyond certain factors—such as the government’s intervention and enforcement ability, public awareness, the energy supervisory system, the level of technological advancement, and market development—the key lies in the forceful execution of the supervisory and managerial duties of the government. To this end, the political and legal checks and balances and accountability systems should be strengthened in order for the government and the relevant authorities to perform their duties on energy supervision. Moreover, energy supervision should include greater public participation and should shift from the traditional energy development model, i.e., resources allocated solely by the government (one hand), to a new model that involves the market, the government, and the community (three hands).

I. RAISING THE QUESTIONS

With the development of China’s market-oriented reform, and the constitutionalization of the basic strategy of “managing state affairs according to law,” laws are playing an increasingly important role in our economic, social and political life, and energy is no exception. Apart from the four already existing energy laws—the Electric Power Law (1995),¹ the Coal Law (1996),² the Energy Conservation Law (1997),³ and the Renewable Energy Law (2005)⁴—relevant departments of the State are studying and drafting a comprehensive energy law, as well as other specific laws on petroleum, natural gas, nuclear energy, energy utilities, etc. They

1. Electric Power Law (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 28, 1995, effective Apr. 1, 1996) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

2. The Law on the Coal Industry (promulgated by the Standing Comm. Nat’l People’s Cong. Aug. 29, 1996, effective date Dec. 1, 1996) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

3. Law on Conserving Energy (promulgated by the Standing Comm. Nat’l People’s Cong., Nov. 1, 1997, effective Jan. 1, 1998) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

4. Renewable Energy Law (promulgated by the Standing Comm. Nat’l People’s Cong, effective Jan. 1, 2006), available at <http://www.npc.gov.cn/zgrdw/English/news/newsDetail.jsp?id=2204&articleId=356955> (P.R.C.).

are also looking into amending the Electric Power Law, the Coal Law, and the Energy Conservation Law, and endeavoring to promote a safe, economically viable, reliable, and environmentally friendly system for energy supply and utilization by improving various legal systems.⁵

In ancient times it was said that “having laws is not enough.”⁶ It is important to create laws, but it is even more important and difficult to implement them. The implementation of the Energy Law involves many dominant players such as the government, state-owned enterprises (SOE), and the general public. Its implementation is faced with a wide array of impediments and challenges, including the general level of technological development, the maturity of the market, the public's awareness, government management, and the degree of community participation.

The comprehensiveness and complexity of the scope of the Energy Law is not on par with that of the existing Electric Power Law and the Coal Law, which are typical sectoral policies and administrative laws. The Energy Conservation Law and the Renewable Energy Law, however, fall under the category of public policies and administrative laws, and will therefore serve as the basis for discussion of the potential implementation problems of energy law in China.

II. DIFFICULTIES IN IMPLEMENTING THE ENERGY CONSERVATION LAW

A. *An Assessment of the Implementation of the Energy Conservation Law*

According to the Report by the Law Enforcement Inspection Group of the Standing Committee of the National People's Congress on the Implementation of the People's Republic of China Energy Conservation Law,⁷ since the law came into effect on January 1, 1998, the State Council and its relevant departments and local governments have done much work and achieved certain results. Energy consumption per GDP unit decreased from 1.56 Tce per 10000 RMB in 1998 to 1.43 Tce in 2005 (all based on the comparable price of 2000).⁸ Energy consumption per production unit for the main energy-consuming products also decreased gradually, and

5. Sun Zongsheng, *China is Planning to Enact Energy Law so that Energy Security May Be Strengthened*, ORIENTAL MORNING POST, Oct. 11, 2005.

6. Wang Xinzhu, *On the Meaning of "Having Laws is Not Enough,"* CONFUCIUS 2000, Apr. 3, 2004, <http://www.confucius2000.com/confucian/tfbnyzxdhhyylgzsq.htm>.

7. Li Tiejing, Report of the Law—Enforcement Inspection Team of the Standing Committee of the National People's Congress on the Implementation of the Law of the People's Republic of China on Conserving Energy, 2006 STANDING COMM. NAT'L PEOPLE'S CONG. GAZ. 258.

8. *Id.*

energy efficiency has increased to some extent.⁹ However, most recently the energy consumption per GDP unit has increased rather than decreased.¹⁰ The coefficient of energy consumption elasticity (the consumption growth rate compared to the overall economic growth rate) during the tenth Five-Year Plan period had an annual average of 1.04, its highest value since the beginning of the “Reform and Opening-Up.”¹¹ Even if the average annual elasticity coefficient remains under 1.0 in the coming 15 years, the primary energy consumption in China would surpass five billion Tce by 2020, which is fundamentally unaffordable.¹² One can safely say that the policy priority of energy conservation and many of the mechanisms stipulated in the Energy Conservation Law have not been faithfully implemented.¹³ Energy conservation work, by and large, adapted the basic national conditions of energy shortage, as well as the basic requirements of economic and social development.¹⁴

B. Analysis of the Causes

Various factors explain why the Energy Conservation Law has been reduced to a mere scrap of paper. A systematic analysis of the root causes and a remedial prescription for this illness will be the prerequisites for improving China’s energy legislation, policies, and their implementation. The analysis below will therefore focus on the following aspects: shortcomings of the legislation and policies; obstacles in the government’s supervisory system framework and enforcement ability; the offsetting effect of related policies; constraints related to the lack of public awareness and weak government investment; and the impact of market and economic structure.

1. Shortcomings of the Legislation and Policies

“[T]here must be laws to go by, the laws must be observed and strictly enforced, and law-breakers must be prosecuted.”¹⁵ These are the basic requirements for the construction of a legal system. “[T]here must be laws to go by” is not only a prerequisite for the implementation of the law, but

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.*

13. *Id.*

14. *Id.*

15. *How Far is 'Bull Market' Away from Us?*, PEOPLE’S DAILY ONLINE, <http://english.people.com.cn/english/200001/19/print20000119X111.html> (last visited Mar. 4, 2007).

also one of the important factors influencing the state and the outcome of implementation.

a. Formulation Process, Background, and Ideology

The drafting work of the Energy Conservation Law began in 1982.¹⁶ The former State Economic Commission and the State Planning Commission proposed a general outline of the Energy Conservation Law in 1984.¹⁷ In 1986, the State Council promulgated the Interim Regulations for the Management of Energy Conservation. The former State Planning Commission then developed an outline draft of the Energy Conservation Law for discussion in 1990.¹⁸ After having been amended 11 times, a draft was submitted for review and approval.¹⁹ On July 14, 1993, the former State Planning Commission and the State Economic and Trade Commission submitted the draft to the State Council. The draft was later amended by the State Council's Bureau of Legislative Affairs and discussed and adopted at its Executive Meeting.²⁰ On April 30, 1995, it was submitted by the State Council to the Standing Committee of the National People's Congress for review and deliberation. It was eventually adopted on November 1, 1997, after several amendments and deliberations.²¹

It is obvious that, at different stages of studying and drafting the Energy Conservation Law, the State's former economic and planning authorities played key and dominant roles. The law was drafted by administrative departments and embodies departmental aspirations, interests, power balances, and a scramble for enforcement rights. This implies that, in studying and drafting the law, the process of dividing functions and responsibilities among the departments led to conflicts and possibly even to a stalemate. Unfortunately, legislators thought that the State Council, not the law, should stipulate the division of the state's energy conservation authorities' duties. Additionally, at that time, institutional reform was underway, and the related organizational structure and functions were not yet clearly defined. As a result, the Energy Conservation Law did not define the duties or the division of work for the competent authorities.²²

The formulation and implementation of the Energy Conservation Law

16. Fang Weilian, *The Legislative Process and Characteristics of the Energy Conservation Law*, 4 ELECTRONIC ENERGY CONSERVATION 11 (1998).

17. *Id.*

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.*

22. *Id.*

spanned the transition from a planned commodity economy to a socialist market economy. Meanwhile, market reforms in the energy sector, on the whole, lagged behind. Therefore, the law is strongly tainted with the characteristics and concepts of a planned economy and does not handle well the relationship between market mechanisms for energy conservation and government supervision. In this regard, Professor Xiao Qiangang, who once partook in the research and drafting of the Energy Conservation Law, pointed out that:

the theoretical values of the Energy Conservation Law follow the ideas of the planned economy, and create an energy conservation mechanism that does not meet the requirements of a market economy and does not adequately combine a compelling and inducing character. The responsible departments did not do a good job. Many mechanisms are not mature and incomplete. They overlooked how government should position itself under the conditions of a market economy framework.²³

In fact, since 1980, the Chinese government has been actively involved in energy conservation, gradually setting up energy conservation institutions with managerial functions at various levels of government.²⁴ Energy engineers and energy administrative bodies were also introduced into large- and medium-sized SOEs, and special personnel were assigned to be in charge of the energy conservation administration.²⁵ This government-based, direct-intervention administrative approach, utilizing administrative plans and guidelines as major tools, was largely effective in the planned economy system.²⁶

With the gradual establishment of the market economy system, the original energy conservation departments, as well as their goals and measures, have become less effective. The overall change and restructuring of the relationship between the market, the government, and the social structure posed a fundamental challenge to energy conservation administration, policies, and laws. Unfortunately, although great changes have taken place in China's economy, society, government, and energy situation in the eight years since the Energy Conservation Law was enacted,

23. Yang Hua, *Conference Overview of the Theoretic Seminar on the People's Republic of China Energy Conservation Law*, 1 *TECH. & L.* 115–16 (2004).

24. Zhou Fuqiu, *Changing the Energy Saving Administrative Function of the Government under the Market Economy Conditions*, 25 *CHINA ENERGY* 39 (2003).

25. *Id.*

26. *Id.*

the energy conservation administration, its mechanisms, main policies, and the systems set by the law have not been assessed, amended, and improved. Likewise, no effective energy conservation mechanism has been established that is better suited to a market economy system. It was not until March 23, 2006, that the Finance and Economic Committee of the National People's Congress set up the Amending and Drafting Group of the Energy Conservation Law. This group formally initiated the amendment work of the law.²⁷

b. The Scope of the Law

The clauses of the Energy Conservation Law were designed mainly for the industrial sector, and they do not, or rarely, if ever, cover energy conservation for sectors such as construction, transportation, commerce, residential use, government institutions, or public service units. Therefore, the law does not seem to create a comprehensive and integrated political and legal system for effective energy conservation. With growing urbanization and social development, inefficient use of energy in construction, transportation, commerce, and residential areas is becoming increasingly prominent.²⁸ Concerns are also being leveled at the wasteful consumption habits of governmental departments and public institutions. For example, an investigation carried out in July 2005 on the energy consumption habits of 48 municipal and district government departments in 2004 showed that per capita volumes of energy consumption, water utilization, and electricity utilization in these governmental bodies were respectively four, three, and seven times the average residential consumption in Beijing.²⁹

c. The Law's Operative Nature

Generally speaking, the Energy Conservation Law is only a policy statement and a policy framework law; it is hardly operative. This is mainly embodied in the following aspect: the provisions of the law are overly principle-oriented, lacking, or weak, in terms of enforcement and punitive measures towards violators.

27. *Implementation of Energy-Saving Inspection Should Focus on the Energy Challenge*, XINHUA, May 12, 2006, http://news.xinhuanet.com/politics/2006-05/12/content_4537162.htm.

28. Fang Ye & Li Jiapeng, *The Root Cause of Energy Waste is the Inadequacy of the Legal Systems*, ECON. REFERENCE (Dec. 15, 2005).

29. Li Meng & Zhu Jingjing, *Who Has the Right to Punish Wasting? Energy Conservation Law Enforcement Encounters the Power Vacuum*, XINHUA, Sept. 26, 2005, http://news.xinhuanet.com/newmedia/2005-09/26/content_3543728_1.htm.

The law consists of six chapters and 50 articles.³⁰ Chapter II, *Energy Conservation Management*, and Chapter IV, *Betterment of Energy Conservation Technology*, mainly stipulate the State and the related government departments' macro-regulatory functions, administrative supervision, and the relevant rules and measures at their disposal. Chapter III, *Rational Use of Energy*, deals with the legal obligations of the following non-governmental players: energy users, key energy users, production units that make energy intensive products and equipment, energy production and sales units, etc.³¹ However, the law stipulates few punitive measures to deal with violators of these clauses. Moreover, regarding the governmental department's macro-regulatory and supervisory functions, the law not only offers a great deal of discretion, but also refrains from imposing any political supervision and accountability, nor does it stipulate any corresponding administrative or judicial support mechanism.³² The designs of the legal and policy systems are poorly correlated and coordinated, having imperfect complementary measures, regulations, and standards.

The following issues were crucial during the legislation process and have an important effect on implementation: whether to stipulate specific technical norms for energy conservation; whether to set up a regular meeting system within the State Council on energy conservation; how to divide duties and authority; whether to levy an energy tax; whether to offset special funds earmarked for energy conservation; whether to implement an energy conservation examination system for investments in fixed assets; and how to regulate corporate in-house energy conservation management.³³ The lawmakers, on the whole, made negative decisions on these issues.³⁴ Generally speaking, the goals and measures of the energy conservation policy are not clearly stipulated in the Energy Conservation Law. The necessary supporting conditions, such as an organizational structure, guaranteed funding, enforceable measures, fiscal and tax incentives, an agreement on energy conservation, technology, and intermediary services, are weak or nonexistent. The energy conservation policy lacks comprehensiveness. A new energy-saving mechanism that combines market regulation, government supervision, and community participation has yet to be set up.

30. Law on Conserving Energy (promulgated by the Standing Comm. Nat'l People's Cong., Nov. 1, 1997, effective Jan. 1, 1998) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

31. *Id.*

32. *Id.*

33. Weilian, *supra* note 17, at 11–13.

34. *Id.*

As for this phenomenon, an official at the Environment and Resources Comprehensive Utilization Department pointed out that

Now our country has an Energy Conservation Law, but there is no enforcement body for the Law; there are provisions in principle that energy conservation must be carried out, but there are no punitive measures for violating these provisions; there is a policy orientation to encourage energy conservation, but the relevant fiscal and tax incentives are simply lacking.³⁵

Some scholars figuratively described the above-mentioned situation as, “When you want money, there is none; when you want an institution, you don’t have any; when you want personnel, there is none; and when you want power, you don’t have any.”³⁶

Moreover, due to the traditional concept that legislation should be outlined and not spelled out in detail, coupled with the infighting and contradictions between the different governmental departments during the preparation of the draft law, the policy objectives and measures defined in the Energy Conservation Law remain a general outline. This means that it is up to the State Council and the pertaining departments to spell out the norms, rules and regulations, and specifications and standards.

For example, Article 12 of the law stipulates

[F]easibility studies for engineering projects involving investments in fixed assets must include proof of rational use of energy. Investments in fixed assets shall be designed and undertaken in conformity with the standards of rational use of energy and for energy conservation. The designated examining and approving organs may reject projects which fail to conform to the standards of rational use of energy and energy conservation or not grant its seal of approval on completion.³⁷

Article 20 stipulates that the “state shall exercise strict management of energy conservation in key energy-using units.”³⁸ Moreover, “[t]he

35. China Entered the Era of Mandatory Energy Conservation, <http://www.gl.cei.gov.cn/xxb/juece/teji/2006/no17.htm> (last visited Feb. 22, 2007) (P.R.C.).

36. Qin Xudong, *The Third Edition of Revised Draft of the Energy Conservation Law Expanded Its Content Substantially*, in 21ST CENTURY ECONOMIC REPORT (Oct. 24, 2006).

37. Law on Conserving Energy (promulgated by the Standing Comm. Nat’l People’s Cong., Nov. 1, 1997, effective Jan. 1, 1998) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

38. *Id.*

supervisory department for energy conservation under the State Council shall, together with the relevant departments under the State Council, set the requirements and formulate measures for energy conservation in the key energy using units.”³⁹

The formulation of the complementary rules, statutes, specifications, and standards is an important component of any further extension of the legislation on energy conservation, but it is also one of the fundamental prerequisites to implementation. Until this is done, China’s energy-saving legislation and policymaking process will not be complete. In practice, however, due to the lack of complementary statutes, implementation rules, and relevant policy measures—including rational energy-use standards, energy-saving design specifications, and the lack of clear punitive and incentive measures—many localities, sectors, enterprises, and people have seen energy conservation work as optional. It is difficult for many mechanisms to be put into effect.

More than 20 provinces, autonomous regions, and municipalities directly under the central government have promulgated up to 70 bylaws and regulations on energy conservation.⁴⁰ Some local governments have also established energy conservation monitoring centers and have launched energy saving campaigns using creative practices.⁴¹ However, in most cases, these bylaws are duplicative or watered-down versions of the Energy Conservation Law and are ill-adapted to local conditions and requirements. Due to the shortcomings and limitations of the initial law, the complementary energy saving bylaws and policy measures are inherently fraught with shortcomings.

2. Obstacles in the Government’s Supervisory System and Enforcement Ability

Article 8 of the Energy Conservation Law stipulates:

The supervisory department for energy conservation under the State Council shall be in charge of supervising and managing energy conservation work throughout the

39. *Id.*

40. Luo Hui & Li He, *Energy Conservation and Resource Consumption Reduction, the Test is Just at the Beginning Stage*, STDAILY.COM, http://www.stdaily.com/gb/kebaishidian/2006-07/11/content_544873.htm (last visited Mar. 7, 2007).

41. Local energy conservation supervision centers have been established in cities such as Shanghai and Ghansu. These centers are in charge of energy conservation enforcement and have introduced some creative measures, such as the development of energy saving contracts between enterprises and local governments.

country. The relevant departments under the State Council shall supervise and manage the work within the respective scope of their functions and responsibilities. The energy conservation administration departments in local governments above county level shall be in charge of managing and supervising energy conservation under their jurisdiction. The relevant departments of the local people's governments at or above the county level shall supervise and administrate the conservation work within scope of their respective functions and responsibilities.⁴²

While these provisions embody the principle of integrated management and shared responsibility, they do not clearly stipulate whether the energy conservation administration department belongs to the planning department or the economic department, or the respective scope of duty of the other relevant departments. The specific law enforcement organ is also not clear.

With the development of a market economy and governmental restructuring, the competent industrial authorities have been dissolved or consolidated, resulting in the disappearance of the corresponding industrial energy saving administrations.⁴³ Moreover, the energy saving departments under various levels of the governments have not been strengthened—on the contrary, they have been downsized, weakened, or dismantled, leading to a severe insufficiency in the government's energy conservation supervisory force.⁴⁴ In the past, the state's energy saving work was jointly undertaken by the former State Planning and Development Commission and the former National Economic and Trade Commission; now, however, it is administered by the Energy Conservation Division of the Environmental and Resources Comprehensive Utilization Department under the NDRC. The lack of effective enforcement mechanisms at the grassroots level—the level that holds punitive powers—is one of the key factors undermining efficient enforcement of the Energy Conservation Law.

3. The Offsetting Effect of Related Policies

Although the state continues to stress the importance of “giving priority

42. Law on Conserving Energy (promulgated by the Standing Comm. Nat'l People's Cong., Nov. 1, 1997, effective Jan. 1, 1998) LAWINFOCHINA (last visited Mar. 8, 2007) (P.R.C.).

43. Wen Xiao Bing, *National Bureau Curtain Call*, CHINA NEWS, May 1, 2001, available at <http://www.chinanews.com.cn/zhonghuawenzhai/2001-05-01/new/19.htm>.

44. Investigation Group of the Chinese People's Political Consultative Conference (CPPCC), *Four Causes Lead to the Failure of Achieving the 2006 Energy Conservation Targets*, XINHUA, http://news.xinhuanet.com/misc/2006-12/21/content_5543154.htm (last visited Feb. 23, 2007).

to energy conservation,"⁴⁵ in practice, the role of market mechanisms in the allocation of resources has not been strengthened. Some important relevant policies are irrational and conflict with the energy conservation goal, thereby leading to unsatisfactory results in the implementation of energy conservation and its relevant laws and policies.

For example, the planned economy ideology of high product prices, low resource prices, and disregard for the environmental costs has not been fundamentally changed.⁴⁶ Such irrational policies have led to low energy prices that fail to reflect the scarcity of resources, the environmental costs of both production and consumption, and costs related to safety, health, and labor protection. This in turn induces companies to produce beyond capacity and abuse resources, leading not only to frequent safety and health accidents but also to serious waste, destruction of energy resources, and infringement of the energy saving policy goal.⁴⁷ Some positive policies, such as the fuel tax⁴⁸ and the official car reform,⁴⁹ intended to promote energy conservation in transportation, or the heating fee reform initiative,⁵⁰ intended to promote energy conservation in buildings, have yet to be implemented.

4. Constraints Related to the Lack of Public Awareness and Weak Government Investment

Due to the influence of the extensive economic development model, Chinese society, in general, attaches great importance to energy supply and exploitation and is relatively unaware of energy conservation and energy efficiency.⁵¹ This has been further exacerbated by the prevailing development concept and the notion that strong GDP growth is the best measure of achievement in public service.⁵² Many governmental

45. Zhu Jianhong, National Development and Reform Commission: Taking Energy Conservation as a Pressing Task (Sept. 1, 2006), <http://gov.people.com.cn/GB/46737/4766967.html> (P.R.C.).

46. Hou Lihong, *Let Enterprise Pay the Bill for Environmental Pollution and Resource Depletion*, FIRST FINANCE DAILY, Dec. 27, 2006.

47. *Id.*

48. Fuel Tax Initiative is Just Going to Run, <http://finance.sina.com.cn/focus/rysysc2005/index.shtml> (last visited Feb. 22, 2007).

49. Official Car Initiative Reform, *Where to Go?*, XINHUA, http://news.xinhuanet.com/politics/2006-09/13/content_5084018.htm (last visited Feb. 23, 2007).

50. *The Reform of the Heating Fee System Has No Time to Delay*, XINHUA, Sept. 13, 2006, http://news.xinhuanet.com/house/2006-09/13/content_5084018.htm.

51. Reform of Institutions that Can Effectively Manage the Policy Objectives, <http://www.ener.cn/jszw140.htm> (last visited Feb. 22, 2007).

52. Zhao Mingfang, *To Implement the Concept and Notion of Scientific Development, Ideas Need Reform*, GUANGMING DAILY, Aug. 28, 2006.

departments are unaware of the extreme importance of energy conservation and lack a sense of urgency, let alone the inclination to act.⁵³ Some localities and departments still compare expected growth rate goals, and only talk idly of energy conservation and environmental protection. Some think that emphasis on energy conservation is merely money spent in vain and an investment with no output; some think that the emphasis on energy conservation is a thankless task that does not reflect achievement in public service; while others think that energy conservation emanates from market behavior in which the government should not interfere. In terms of financial investment, energy conservation work lacks stable fiscal support.⁵⁴ The state's investment in energy conservation is also relatively low and tends to decrease year by year.⁵⁵ The proportion of the state's investment in energy efficiency, as a proportion of total energy investment, dropped from 13.2% in 1983 to 4.5% in 2003.⁵⁶ Furthermore, government funding available for energy conservation is not only scarce, but also scattered among various departments.⁵⁷ This renders it impossible to effectively support the fulfillment of the energy conservation goal in a concentrated and systematic manner.

In fact, energy efficiency and energy conservation is a very important kind of "resource" that is easily quantifiable, assessable, and manageable. Practice has shown that promoting energy conservation does not work without market mechanisms and should also be an important component of the government's responsibilities.⁵⁸ This is because the market cannot reflect the true value of energy conservation and the long-term socio-economic development goals. In a market economy, the state's management and supervision responsibilities include: applying the necessary legal, economic, and administrative measures to encourage energy conservation; increasing substantially the cost of wasteful energy consumption; and supporting research and development and the promotion of energy saving products and technologies.⁵⁹ Additionally, the governmental bodies, significant energy consumers themselves, should lawfully adopt effective measures to save energy.

53. Tieying, *supra* note 7.

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.*

58. Zhou Hongchun et al., International Trends and Experiences in the Field of Energy, http://www.3edu.net/lw/jrlw/lw_41863.html (last visited Feb. 23, 2007).

59. *Id.*

5. Technology Support

Comprehensive technology support is one of the prerequisites for the realization of energy saving goals. However, it is difficult to adapt energy saving technologies to China's energy efficiency needs. The following explain why:

- a) China's energy technology level is generally low. For example, coal consumption for each kilowatt hour of thermal power generation in 2004 was 379g standard coal, 67g higher than in developed countries. Heating the surface of a building consumes two to three times more energy than it would in developed countries with similar climates. Freight and cargo vehicles carrying a one hundred-ton load per kilometer consume twice what they consume in industrialized countries;⁶⁰
- b) Research and development of energy-saving technologies and its dissemination is unsuited to China's energy conservation needs. Research and development institutions and intermediary agencies are few, indigenous innovation capacity is scarce, and very few technologies and products use indigenous intellectual property rights;⁶¹ and
- c) Energy saving standards are unable to stimulate technological innovation and development in the field of energy conservation. Energy saving standards are overly adapted and accommodating of the existing technological level, include few requirements for future energy conservation standards, and lack foresight for new energy saving standards.⁶²

6. The Impact of Market and Economic Structure

To achieve energy efficiency improvement and energy conservation, it is necessary to enhance public awareness of energy conservation through legal and political guidelines and standards. However, market competition and profit-driven interests will be the fundamental incentive mechanisms. For this reason, it is necessary to consider the issues of energy scarcity as well as to establish and maintain a rational energy pricing mechanism, using price signals as a guide to improving energy efficiency. At the same

60. The Law Enforcement Review Group of the Standing Comm. of the Nat'l People's Cong., *Examining Report on the Implementation of the People's Republic of China Energy Conservation Law*, BULLETIN OF THE STANDING COMM. OF THE NAT'L PEOPLE'S CONG. 619-20 (July 2006).

61. Tieying, *supra* note 7.

62. *Id.*

time, we must encourage the companies to improve their market positioning, management structures, and corporate culture. We must also ensure a favorable competitive environment for both energy producers and consumers.

China is, on the whole, in the process of economic transition. The market economy mechanisms, in particular the energy market mechanisms, are far from mature. The situation of “high product prices, low resource prices and disregard for the environmental cost” is still salient. The energy structure is still heavily reliant on coal, and the economic structure is heavily reliant on chemical industries—a structure that is difficult to improve in the short term.⁶³ With the strong impetus of economic development, the financial crisis, and energy supply exceeding demand in China after 1998, the demand for energy conservation waned; the conditions for the implementation of the Energy Conservation Law were not sufficiently ready.⁶⁴ In such a situation, the government was duty-bound to undertake the responsibilities of economic manager and regulator. These responsibilities include: establishing and maintaining a market competition mechanism; formulating and implementing relevant laws and policies to boost technological progress; promoting extensive economic restructuring; shifting the economic growth pattern to focus more on the qualitative aspects of development; and establishing a government administration model better suited to a market economy, including an energy-saving management model.

III. CHALLENGES IN IMPLEMENTING THE RENEWABLE ENERGY LAW

On January 1, 2006, the Renewable Energy Law came into effect.⁶⁵ This law was drafted by legislators taking into account the economic, social, energy, and environmental conditions in China and assimilating domestic and foreign experiences and lessons. It is, therefore, relatively perfect as far as energy legislation in the existing energy law system goes. In principle, the law establishes the overall goal of renewable energy development, a corresponding safeguard system, and a law enforcement mechanism. It identifies the legal relations between the different actors,

63. Yan Ruosen, *Economic Transition and Restructuring of State Owned Enterprises* (Feb. 17, 2006), <http://biz.163.com/06/0217/11/2A5M1A5A00020QBE.html>.

64. *Zhang Guobao to Solve the Energy Issue: Changes in the Extensive Mode of Economic Growth*, SINA NEWS, Sept. 10, 2005, <http://finance.sina.com.cn/roll/20050910/18321958365.shtml> (last visited Feb. 22, 2007).

65. Renewable Energy Law (promulgated by the Standing Comm. Nat'l People's Cong. effective Jan. 1, 2006), available at <http://china.lbl.gov/publications/re-law-english.pdf> (P.R.C.).

namely government, corporate actors, and the general public, in developing renewable energy. The law also promotes the development of renewable energy against the backdrop of a socialist market economy and market reforms in the energy sector.⁶⁶ Observers hold great expectations with regard to the development of renewable energy in China, especially in terms of the country's industrialization process.⁶⁷ However, whether or not this bright horizon for the development of renewable energy in China can be sustained by the government through legislation depends on multiple factors, such as: the formulation of relevant complementary provisions; further revision and improvement of the legislation; reform of governmental organizations; and an improved understanding of the fundamental relationships among technology, market, and society, all of which remain highly complicated and uncertain.

The Renewable Energy Law and the Energy Conservation Law have many factors in common. On the whole, they are merely policy framework laws requiring further development in terms of operative guidelines, rules and regulations, and technical specifications. Both also face many limitations in their implementation. In implementing the Renewable Energy Law, lessons should be taken from the implementation of the Energy Conservation Law to avoid falling into the same trap again. The following sections discuss the main challenges China faces in implementing the Renewable Energy Law.

A. Formulating Complementary Measures and Further Improvement of Legislation and Policies

The Renewable Energy Law is merely a framework law that is still in need of more than ten complementary provisions. These provisions are the responsibility of the State Council and the competent departments of energy, pricing, construction, and standardization at the central or provincial level.

Some complementary provisions have already been developed, namely Interim Measures for the Administration of Land Use for Wind Power Plant Project Construction and Environmental Protection,⁶⁸ Directory for

66. *Id.*

67. Gu Yi, *Renewable Energy Law Will Boost a 100 Billion Yuan Market*, CHINA ENERGY NETWORK, Sept. 26, 2005, <http://www.china5e.com/news/newpower/200509/200509260041.html>.

68. Wind Farm Construction Sites and the Interim Measures for the Administration of Environmental Protection (promulgated by the State Dev. and Reform Comm'n and the State Env'tl. Prot. Admin. of the Ministry of Land and Natural Res., released Aug. 9, 2005) CHINALAWINFO (last visited Mar. 8, 2007) (P.R.C.).

Renewable Energy Industrial Development,⁶⁹ Trial Measures for Renewable Energy Generation Pricing and Expense Amortization,⁷⁰ Provisions for the Administration of Renewable Energy Generation,⁷¹ and Technical Specification for Application of Solar Energy Water Heating Systems in Residential Buildings.⁷² Many important complementary provisions, however, have not yet been issued. Such provisions include regulations for water power generation, long and medium term goals for national renewable energy exploitation and utilization, preferential tax provisions for the use of renewable energy in industrial development projects, and a renewable energy development and utilization plan.

These complementary provisions are not only indispensable organic parts of the renewable energy legislation in China; they are also important prerequisites for its effective implementation. The relevant government entities have a legal duty to enact these provisions. Moreover, the lack of complementary provisions shows that renewable energy legislation in China is incomplete and that the government organs in question are not very effective in performing their legal duties. These omissions could lead to a situation whereby there are no rules to follow, thus limiting the actual effect of the Renewable Energy Law.

In order to boost the healthy, sustained development of the renewable energy industry in China, these complementary provisions must be formulated and improved, and the legal awareness of the government, corporate actors, and the public on renewable energy must be increased, so as to spur the effective implementation of the legislation. Future development should combine improved legislation, reform of the supervisory system, and improved systemic and organic integration of technology, market, and society. As part of this effort, perfecting the renewable energy supervisory system goes hand in hand with reforms in both government and the energy sector. The general trend should be to integrate functions of the relevant energy supervisory departments by establishing a powerful energy supervisory organ, much like a Ministry of

69. Directory for Renewable Energy Industrial Development, <http://law1.chinalawinfo.com/newlaw2002/SLC/SLC.asp?Db=chl&Gid=73386> (last visited Mar. 8, 2007).

70. Trial Measures for Renewable Energy Generation Pricing and Expense Amortization, <http://law1.chinalawinfo.com/newlaw2002/SLC/SLC.asp?Db=chl&Gid=73166> (last visited Mar. 8, 2007).

71. Administrative Provisions for Renewable Energy Power Generation, <http://www.abanet.org/enviro/committees/renewableenergy/teleconarchives/041906/AdministrativeProvisionsforRenewableEnergyPowerGeneration.pdf> (last visited Mar. 8, 2007).

72. Technical Specification for Application of Solar Energy Water Heating Systems in Residential Buildings, <http://law1.chinalawinfo.com/newlaw2002/SLC/SLC.asp?Db=chl&Gid=66454> (last visited Mar. 8, 2007).

Energy, at the national level. The substance of renewable energy legislation should be oriented to strengthening market mechanisms and the role of the civil society, so that the “three hands,” i.e., the government, the market, and the civil society, will cooperate and function jointly, so as to give maximum consideration to social equity while upgrading the economic efficiency and sustainable development of the renewable energy industry. For this reason, the public should be entrusted with legal standing and rights in policymaking and implementation of renewable energy laws. Moreover, until the development of renewable energy reaches a stage where it is based on market mechanisms, the current feed-in law system should be replaced, either by renewable portfolio standards or some other market-based system. Additional laws or regulations should be formulated within the framework of the Renewable Energy Law and its complementary provisions to encourage the use of different types of renewable energy—such as small-scale hydropower, wind energy, biomass, or solar energy—according to their level of technological development and market orientation. Such reforms will lead to a renewable energy legislation system with the Renewable Energy Law as the foundation and individual laws and regulations as the structure.

B. Supervisory System and Law Enforcement Mechanism

With respect to the renewable energy supervisory system, Article 5 of the Renewable Energy Law stipulates that the competent department under the State Council shall administer all national development and exploitation of renewable energy.⁷³ The State Council departments of science and technology, agriculture, water conservancy, land resources, construction, environmental protection, forestry, ocean, and meteorology are responsible for the administration of renewable energy exploitation and utilization within their respective scopes of duty. Above the county level, the relevant departments of the local people’s government are responsible for the administration of renewable energy exploitation and utilization within their own administrative regions.⁷⁴ Moreover, Article 27 stipulates that power enterprises should record and preserve accurate and complete information about renewable energy generation, except for inspection and supervision from power supervisory organs, which are required to inspect these enterprises in accordance with stipulated procedures and keep confidential

73. Renewable Energy Law (promulgated by the Standing Comm. Nat’l People’s Cong, effective Jan. 1, 2006), available at <http://china.lbl.gov/publications/re-law-english.pdf> (P.R.C.) (last visited Mar. 8, 2007).

74. *Id.*

any commercial secrets or other sensitive information about the units inspected.⁷⁵ The competent department under the State Council refers here to the NDRC, and the power supervisory organs refer to the State Electricity Regulatory Commission and its branches.

The renewable energy supervisory system established by the law is a simple confirmation of the present situation; it contains no innovation or reform. All the existing shortcomings—such as a multiplicity of policies from various departments, overlapping functions, repeated construction, overly elaborate procedures, and difficulties in coordination—have all remained unsolved.⁷⁶ These shortcomings result in reduced efficiency, confusion in administration, and the weakening of the state's macro regulatory power. Furthermore, as a result of multiple government organizational reforms, the organs in charge of renewable energy exploitation and utilization have been weakened, and the human resources are severely insufficient.⁷⁷ As a result, it is hard to raise these issues to the top of the agenda and complete the work that is needed to improve enforcement of the Renewable Energy Law.

In terms of the enforcement mechanism, the Renewable Energy Law stresses the state's role in macro regulation and guidance. Naturally, the enforcement mechanism can hardly do without "official enforcement" led by the government. Economic analyses illustrate that government intervention in response to market malfunctions and failures can also turn out to be flawed,⁷⁸ and should therefore be effectively restricted and corrected. Besides traditional internal power restricting mechanisms, such as division of authority and internal checks and balances, the international community places great emphasis on the role that the general public, especially civic organizations, plays in the formulation and implementation of environmental laws and policies. The public's legitimate environmental rights—namely the right to information, the right to participate, and a role in mediating conflicts of interest between different parties—must be protected in order to achieve the goal of "society limiting power."⁷⁹ Article 9 of the Renewable Energy Law requires clearly that "opinions should be

75. *Id.*

76. The National Development and Reform Commission, the Ministry of Commerce, the Ministry of Agriculture, the Ministry of Water Resources, and the State Electricity Regulatory Commission respectively all are in some way in charge of renewable energy affairs.

77. Energy Institute of Nuclear Energy Technology, Problems Related to the Level of Energy Policy, http://www.chinainfo.gov.cn/data/200411/1_20041119_96642.html (last visited Feb. 23, 2007).

78. DAVID W. PEARCE & JEREMY J. WARFORD, *WORLD WITHOUT END: ECONOMICS, ENVIRONMENT, AND SUSTAINABLE DEVELOPMENT* 173–74 (1993).

79. Yang Yanping, On the Public's Right to Participate in Environmental Law (Nov. 23, 2006), http://www.lm.cn/economic/environmenteco/200611/t20061123_5722.htm.

solicited from relevant units, experts and the general public and a scientific feasibility study must be made in drafting a renewable energy exploitation and utilization plan.”⁸⁰ This language embodies both a scientific and democratic spirit, though in reality, it is merely a principled policy declaration and not an actual operative rule. In terms of the formulation of complementary rules and standards, the determination of development goals, license examination and approval, monitoring, and law enforcement, the Renewable Energy Law grants no such rights to the general public. Hence, with respect to its renewable energy legislation, China has not set up an enforcement mechanism that combines government administration with general public involvement and social checks and balances; its enforcement simply depends on the government’s force for implementation.

The renewable energy legislation and policy implementation mechanism is run almost entirely by the government. The resulting policies lack stability and continuity, government malfunctions become commonplace, government in-house supervision and restriction mechanisms are often a formality, social checks and balances are nonexistent, and the certainty and effectiveness of renewable energy policy implementation is substantially reduced, thereby hindering the chances of realizing the goals of the legislation. Additionally, factors such as the limitations of the supervisory mechanism itself, insufficiency in law-enforcement ability, and the lack of willingness to enforce laws, may also have adverse effects on the enforcement of the Renewable Energy Law.

C. Awareness of the Concept of Developing Renewable Energy

On February 28, 2005, the Renewable Energy Law was adopted with 162 affirmative votes, one abstention, and zero negative votes.⁸¹ This overwhelming support shows that legislators not only place a particular emphasis on promoting renewable energy development in China in accordance with the law, but that they recognize this need almost unanimously.

In practice, even though the State has made clear that renewable energy exploitation and utilization is an area of high priority and that key public and private actors are encouraged to be involved, some local governments are enthusiastic about, and spare no effort in, starting thermal power plants,

80. Renewable Energy Law (promulgated by the Standing Comm. Nat’l People’s Cong, effective Jan. 1, 2006), available at <http://china.lbl.gov/publications/re-law-english.pdf> (P.R.C.) (last visited Mar. 8, 2007).

81. Yan Jian & Li Kecheng, *Zhou Fenqi “Shells” Renewable Energy Legislation*, <http://www.p5w.net/news/gncj/200611/t618909.htm> (last visited Feb. 22, 2007).

while renewable energy generation projects are often “pending discussion.”⁸² The objective cause of this phenomenon is that most thermal power projects are larger in scale, attract greater investment, bring about faster results, and are more profitable than renewable energy projects. Moreover, their contribution to local economic and GDP growth is more evident.⁸³ The subjective cause is that local governments underestimate the severe situation of conventional energy and turn a blind eye to pollution and destruction of the environment; they lack the fundamental awareness of the urgency of developing renewable energy.⁸⁴

The source of this conventional thinking is the sole consideration of economic price, with disregard for the social and environmental costs. More deeply, however, these notions stem from local governments' development concept, that is, their concept of the manifestation of public achievement, and their alienation from their functions.

1. Unscientific Development Concepts and the Incorrect Concept of Political Merit

In the 1980s, the state put forward a development strategy of “placing focus on economic construction,” in view of the urgent need to develop the economy and improve the people's standard of material and cultural life.⁸⁵ The traditional GDP calculation method does not take into account costs related to resource degradation, environmental deterioration, or other social costs. When combined with a highly centralized “personal rule” political structure and the predominance of GDP as a supreme indicator for political merit, such a strategy induced local governments—especially some Party heads—to blindly pursue local GDP growth for their own self-interest, without showing concern for the social and environmental costs.⁸⁶

2. Alienation and Dislocation of the Local Government from their Functions

The original function of government—to make up for flaws and failures in the marketplace in the interest of the general public—concentrated

82. Zhao Yongxin, *Renewable Energy, Far From Enough Only with Law*, PEOPLE'S DAILY ONLINE, Jan. 5, 2006, <http://env.people.com.cn/GB/35525/3999540.html>.

83. *Id.*

84. *Id.*

85. Li Junru, *The Theoretical Basis and Significance of Constructing Socialist Harmonious Society*, <http://www2.bjfu.edu.cn/aa/dianzixw/readnews.asp?NewsID=6693> (last visited Mar. 8, 2007).

86. 6 WANG JIN & WANG MINGYUAN, *China Environmental Governance by Law—A Heavy Task and A Long Way to Go*, in *LAW GOVERNANCE BALANCE DISCUSSION* 157–59 (Gao Hongjun ed. 2005).

mainly on issues that the market cannot account for effectively, like compulsory education, public health, and environmental protection.

However, under the existing system in China, local governments have their own economic interests and have become special market players. They often think only of local economic growth and leave such matters as maintaining macroeconomic balance, sustainable development, environmental protection, etc. to the central government and the whole society. In short, the “corporatization” phenomenon exists evidently in local governments, as does severe alienation and departure from their original function.⁸⁷

The central government must consider the interests of the whole society and maintain macroeconomic stability and sustainable, long-term economic growth. It depends for this on local governments at different levels to implement its policies and guidelines. However, with local governments becoming “quasi-enterprises” due to their independent economic interests, their interests often come into conflict with the central government’s economic policies, including environmental protection and renewable energy development policies. Thus, local governments either agree outwardly and disagree inwardly, or openly disobey the central government in the process of implementation.⁸⁸ Overcoming these deep-rooted conflicts of interest is an important factor for the State’s effective macro regulatory control and administration.

In terms of social acceptability, the people’s environmental protection awareness is very poor due to low economic and social development levels in China, coupled with a stagnating process of political and legal reforms. Many local governments do not understand the importance and urgency of developing renewable energy and pursue the development of thermal power projects while disregarding renewable energy projects.⁸⁹ Furthermore, the willingness of the general public to “pay” voluntarily for renewable energy is also very low. For example, the inhabitants of Shanghai were encouraged to purchase “green electricity” in a big campaign launched in

87. *Can Profit Be Made Only by Disobedience? Analysis of Phenomenon that Local Governments Disobey the Central Policies*, XINHUA, http://news.xinhuanet.com/politics/200609/13/content_5087316.htm (last visited Feb. 23, 2007).

88. *Id.*

89. Bai Hongyi, *Most Citizens have Poor Environmental Awareness that China Fails to Meet the Indicator System for Environmental Well-Being*, SINA NEWS, Apr. 1, 2005, <http://news.sina.com.cn/2005-04-01/10266256461.shtml>.

November 2005. However, by the end of December, only five households in the northern region of Shanghai had subscribed to the program. The main reason for the program's lack of popularity was that every household using "green electricity" had to pay an extra RMB 5.3 each month.⁹⁰

D. Technology and Market Conditions

From the perspective of technological maturity, renewable energy can be divided into four categories: economically feasible technology, industrialized technology based on government encouragement, technology in research and development, and future technology.⁹¹ The renewable energy enterprises in question are, however, usually small in scale, technologically backward, and inconsistent with respect to product quality. Because of shortcomings in legislation and weak law enforcement, external costs like pollution from conventional fossil fuels are hard to internalize. Limitations in both technology and market conditions mean that most renewable energy products are costly and uncompetitive. Other technological barriers to industrial development or renewable energy products include imperfect technological guarantees and service systems for renewable energy, lack of technological standardization, and weak resources for evaluation of their success.⁹²

Although the renewable energy industry is growing gradually in China—some individual technological products like small hydroelectric power plants and solar heaters have entered into a stage of industrialized development—most of the important technologies are still undeveloped.⁹³ For example, technologies for wind power, biomass, solar energy generation, and tidal energy have reached or approached the commercial level in Western countries, while in China they are still in the research and development or demonstration stages. In short, the foundation for large-scale industrialization is not available in China, and both renewable energy technology and products are still in the early stages of industrial development.⁹⁴

90. Tieying, *supra* note 7.

91. Wang Qingyi, *Present Status, Barriers and Countermeasures for Renewable Energy in China*, 7 CHINA ENERGY 42 (2002).

92. *Id.*

93. See generally Shi Jingli & Li Junfeng, *The Prospects of Renewable Energy in China*, http://www.creia.net/cms/_code/chinese/news/new_detail.php?column_id=21&item_id=2336 (last visited Feb. 22, 2007) (discussing the growth of wind and solar power generation industries in China).

94. Zhang Lizi et al., *Studies on Policy Framework for Promoting Renewable Energy Development in China*, CHINA POWER, 2006, at 89; Liang Zhipeng, *Essential Process of Renewable Energy Development and Policy Orientation of China*, CHINA POWER, 2002, at 30.

From the perspective of the market, the energy industry is one of the last “fortresses” of China’s planned economy. The energy industry in China did not begin the process of “separation of government administration from enterprise management” and the transition from a planned economy to a market economy until the National Electricity Corporation was established in 1997 and the Ministry of Power Industry was disbanded in 1998.⁹⁵ However, the administrative system of “power control by multiple authorities,” which developed under the planned economy, has great inertia. The orientation and prospects for the State’s systematic reform in the whole power control system is still unclear. This means that the road to privatization of state-owned electricity companies and their market-oriented reform will be tortuous and very long.⁹⁶ The lack of open, fair, regulated, and orderly market competition mechanisms in the energy sector is a fundamental hindrance to renewable energy development and to the Renewable Energy Law’s implementation.

CONCLUSION

In the period of rapid economic and social transition in China, the implementation of the Energy Conservation Law and of the Renewable Energy Law face unique problems, but they also face some common barriers, namely shortcomings in the laws and policies themselves, insufficiency of the supervisory system and government enforcement ability, monopoly over the law enforcement mechanism, weakness of social awareness and recognition, and limitations due to immature technical and market conditions. Overall, these energy laws merely provide a basic policy and system framework. Specific policy goals and system tools, including government administrative systems, law enforcement organs, funds, and complementary rules and standards are not yet developed.

Therefore, the promulgation of a national energy law does not end the

95. State Power Information Network, Development of Electricity Reform, <http://www.sp.com.cn/ggzl/ggk/ggk.htm> (last visited Feb. 23, 2007).

96. The nominal duty scope of the State Electricity Regulatory Commission consists of market supervision, power transmission supervision, power supply regulation, price and finance, auditing work, power safety, etc. However, in the existing management pattern of the electric power industry, project approval right, price approval and regulatory right and industrial policy establishment right are all exercised by National Development and Reform Commission, the enterprise financial management right by the Ministry of Finance, and the personnel appointment and dismissal right by National Assets Control Commission. Besides, local government and competent authorities having jurisdiction also have their own limit of authority. China State Power Information Network, Power Reform—State Power Supervision Commission, <http://www.sp-china.com/powerReform/spsc.html> (last visited Feb. 23, 2007).

legislating and policymaking process. Subsequent energy rulemaking and policymaking, led by administrative organs, has thus far proven to be uncertain and insufficient. In the case of the Energy Conservation Law, no specific policy goals, rules, or guidelines have been put in place even several years after the law came into effect. Furthermore, as China is a large country with unbalanced regional development, uniform national legislation often fails to consider local characteristics and is not specific or adaptable to local needs.

It is thus clear that there are certain inherent limitations in the Chinese legislative system. In particular, the weak supervisory mechanism of the legislative body over the administrative organs seems to be an important "source" of the incomplete energy legislation and policymaking process. Moreover, the lack of assessment and feedback mechanisms results in legislation and policy that cannot be modified or improved in a timely fashion during the implementation. Dislocation of government roles and functions, as well as weak law enforcement ability, hinders the realization of policy goals. The absence of public and judicial involvement leaves unsatisfactory law enforcement by the government untouched, uncorrected, or even exacerbated. All these important factors severely harm the implementation of the current energy law. Exacerbated by the constant evolution of economic, social, energy, environmental, and government administrative systems, the cases where laws and policies are divorced from, or even in conflict with, reality becomes more evident and their harmful effects more salient.

Strengthening and improving the implementation of energy laws is complex, and it involves multiple entities, such as the government, market, and society. However, the key breakthrough point of China's legal reforms with respect to environmental protection is the forceful execution of the government's supervisory duties. Thus, it is important to strengthen the cyclic mechanism of law formulation (implementation – assessment – feedback – law modification – re-implementation – reassessment – re-feedback – law re-modification). Moreover, it is also necessary to constantly improve related energy legislation and policies, to enhance political and legal supervision, and to encourage accountability of the government and its relevant departments in performing their energy supervisory duties. China must also strengthen the general public's involvement, shifting from the traditional energy development model with the government "running a one-man show," that is, "one hand" allocating resources, to a new model of cooperation involving the market, the government, and the civil society, that is, "three hands" allocating resources.

Theoretically, under such a new development mechanism, not only does the role of the “invisible hand” need to be guaranteed in order to improve efficiency, but also the role of the “visible hand” of effective regulation should be ensured in order to overcome any failure in the market. At the same time, the social hand’s full participation should be guaranteed to contain failures in the two systems, i.e., government and market. Building and cultivating this mechanism is an important basis for the effective implementation of the energy laws and for the healthy development of the energy industry in China. It is also a reform process of replacing an old mechanism with a new one.