China National Energy Strategy and Policy 2020

Subtitle 1:

The review and evolution
On energy strategies and policies

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Review and Evolution on Energy Strategies and Policies

Ⅰ Overview

Since the reform and opening up, the Chinese government has attached great importance to energy. Different policies have been adopted in accordance with different stages, including: the policy of energy development, energy-saving policy, policy of energy technology, policy of energy economy and policy of energy import and export, etc. The initiation and implementation of these policies both facilitate the growth of energy supply and reasonable utilization of energy and support the high-speed development of national economy.

Main achievements

Energy output has grown rapidly, China becomes a big energy producing country and the bottleneck of energy in the social and economic development has been alleviated. The primary energy production increased from 637.35 million ton standard coal in 1980 to 1069.88 million ton in 2000. The output of raw coal, the output of crude oil and the electric power production respectively saw rise from 0.62 billion ton, 105.95 million ton and 300.6 billion kWh in 1980 to 1 billion ton, 163 million ton and 1355.6 billion kWh in 2000. The total energy production, the output of raw coal, the output of crude oil and electric power production respectively ranked third, third, sixth and sixth in 1980, and third, first, fifth and second in 2000. In 1997, the relations between supply and demand of energy undertook great changes. The energy supply saw unprecedented relative surplus with alleviation of energy supply shortage in 1998, and local and seasonal tightness once again after 2000.

The construction of major energy projects has made steady progress. Since 1980, manpower and material resources have been pooled to construct such energy projects as Shanxi Energy Base, Gezhou Dam Power Station, Ertan Power Station, Three Gorges Project, Daya Bay Nuclear Power Station, Daqin Coal Railway, Shanxi-Beijing Gas Pipeline and West-East Electricity Transmission.

Energy intensity has decreased by a large margin, and the relatively low growth in energy has ensured the rapid expansion of national economy. From 1980 to 2000, the average energy-saving rate in China was 5.3 percent, four times of that of the developed countries, and the elasticity coefficient of energy consumption was 0.41. Thanks to the industrial restructure and the increase in energy efficiency, China succeeded in the rapid development of national economy with relatively low growth in energy.

In efforts to adapt to market economy system, the reform of the management system of energy sector has been steadily pushed forward. The control over coal market has been completely relaxed, enterprises and the government have been detached in power sector, the policy of “separation of plants from grids, bid for grids listing and supervision by

government" has been carried out in a step-by-step manner. Still, the control over the field of oil-gas industry has been relaxed and the pricing mechanism follows international practice.

In spite of great achievements in energy sector, China's energy development still faces severe challenges with deep-rooted problems unsolved, such as increasingly widening gap between supply and demand, increasing dependence on foreign resources of energy, the whole efficacy of energy sector remaining to be increased and the energy service remaining to be improved.

It is of great significance to review and assess China's energy strategies and policies as well as to sum up the successful experiences and lessons of the past energy strategies and policies. By doing this, we could provide guidance to future energy strategies and policies and facilitate the sustained energy development.

The report mainly reviews and assesses the energy strategies and policies from 1980 to 2000. There are seven parts in the report, including comprehensive strategies and policies, coal, oil and gas, rural energy and new energy, energy environment and energy saving.

The assessment results of major energy policies since the reform and opening up see table 1-1. Among 68 items, not ready for assessment are 6 items and assessed are 62 items among which 30.6 percent produce good results, 53.2 percent fairly good results and only 14 percent poor results.

Table1-1. Assessment Results Of Major Energy Policies Since The Reform And Opening-up

	Total Number Of Assessed Policies	Good Results	Fairly Good Results	Poor Results
Number	62	19	33	10
Proportion（%）	100	21.9	64.1	16.1

Table1-2. Assessment Of Comprehensive Strategies And Policies

Ⅰ Comprehensive Assessment			
	Contents	Results	Brief Reasons
1.	In 1980, Deng Xiaoping proposed, "Energy is an issue of primary importance in economic area. "	Good	Establishment of the strategic place of energy in the national economy.
2.	1980, the Central Government proposed that the general principle solving the problem of energy in China was "Development and economy were given equal importance with energy-saving of priority in the near future. "	Fairly Good	Establishment of the important place of energy saving, lack of appropriate coordinated measures and adequate implementation.
3.	In 1982, the 12th National Congress established the strategic importance of energy in the social and economic development.	Good	Strengthen of the strategic place of energy in the national economy.

4.	In 1985, the Central Government proposed, "The development of energy sector was centered on electric power."	Fairly Good	Establishment of the energy development principle centered on electric power, accelerating the development of power sector and giving impetus to the development of coal sector.
5.	In May 1986, the State Council issued "Major Points of National Energy Technology Policy" (State Council Notice [1986] No 40).	Good	Adoption of new ideas and notions and decision making schemes, playing a big role in democratizing and making more scientific the decision making notions, methods and procedures in energy sector.
6.	On July 4, 1994, the State Council sent out the notice to implement The 21st-century Agenda of China: the White Paper of China's Population, Environment and Development.	Good	Conformity to sustained development strategy; increase of energy using efficiency and protection of environment.
7.	"The Ninth Five-Year Plan of National Economy and Social Development and the Outline of Long-term Targets in 2010" in March, 1996 pointed out the energy development principle that "Energy development and energy-saving are given equal importance with energy-saving of top priority; great efforts should be made in restructuring the energy production and consumption; advanced technologies should be spread in efforts to increase energy production efficiency; energy development and environmental control should be synchronized and the price of energy products should be rationalized. The energy construction is centered on electric power and based on coal, with exploration and development of oil and natural gas being strengthened and new energy actively being developed. "	Fairly Good	Explicit and systematic proposition of China's energy development strategy for the first time. But the implementation needed to be strengthened.
Ⅱ Resources			
8.	Mineral Resources Law was promulgated on March 19, 1986 and amended on Aug. 29, 1996. The system of paid acquisition of prospecting right and mining right was adopted, resources taxes and compensation fees were required to be paid to mine for mineral resources, and the right of prospect and the right of mine were allowed to be transferred.	Fairly Good	Establishment of the principle of paid use of resources; promotion of technological advance and increase of technological content in conformity to sustained development strategy. Insufficient explicitness and reasonableness in compensation standards for different resources.
9.	Provisional Regulations of Prospect and Exploration of Oil and Natural Gas was released in Dec., 1987.	Fairly Good	Realization of standard management in oil industry and paid use and transfer of resources.
Ⅲ Coal Policies			

10.	Resources taxes and fees policies. Mineral Resources Law were passed in the 16th session of the 6th Standing Committee of the National People's Congress on March 19, 1986 and implemented on Oct. 1, 1986. On Aug. 29, 1996, the 12th session of the 8th National People's Congress passed Decision on Amendment to Mineral Resources Law of the People's Republic of China and the coordinated rules and regulations including Regulations on Registration of Mineral Resources Prospect Zones, Regulations on Registration of Mineral Resources Prospect, Regulations on Impose of Compensation Taxes and Fees of Mineral Resources.	Fairly Good	Chinese government imposed fees of prospecting right and mining right as well as money, paid by the state for exploration, of prospecting right and mining right on prospectors and miners, which put an end to the history of unpaid prospect and mine of mineral resources. Compensation fees reflected the right and interests of the state as the owner of mineral resources. It established the incentive mechanism to facilitate the protection and reasonable utilization of mineral resources. Compensation fees charged by the Chinese government, mainly used for the prospect of mineral resources, were brought into the national budget and were put under ad hoc management.
11.	Coal Law was passed in the 21st session of the Standing Committee of the National People's Congress on Aug. 29, 1996, published as presidential decree 1996 No 75 and implemented on Dec. 1, 1996.	Fairly Good	Help to bring the coal sector to the track of legal system, but not completely catering to the needs of situation.
12.	Coal Department: Report on Eight Measures to accelerate the development of Small Coal Mine (April, 1983), Notice of Further Relaxation of Policies and Development of Local Coal Mines（June 28, 1983）, Notice of Active Support for Mine Operation by the Mass.(Nov. 6, 1986）	Fairly Good	Remarkable effects of the increase in coal supply, but heavy cost owing to resources waste, environmental destruction and deteriorating production safety.
13.	The 6th Five-Year Plan passed by the State Council on Dec. 10, 1982 explicitly pointed out that the Coal Base of Heavy Chemical Industry was built with the center on Shanxi, including the western Inner Mongolia, the northern Shaanxi, Ningxia and the western Henan.	Fairly Good	Active role in increasing energy supply, but with the problem of environment and ecology being increasingly serious.

14.	As one of four trans-century XL projects and the second largest avenue of coal transport from west to east, Shenhua Project, which is constructed by Shenhua Group, a large-sized state-owned enterprise, is constituted by development of Shendong mine, Kenkou power plant, Shenhuang two-line electric railway, Huanghua coal-transport dock in capacity of ten thousand ton and the marine shipping system. It is a systematic project combining the mine, road, port, electric power, and shipping. The total investment is planned to amount to 89 billion Yuan, only next to Three Gorges. A saying goes that in the south China lies Three Gorges and in the north China Shenhua. Due to the large investment, the Shenhua project is carried in the report on the 14th National People's Congress and The Ninth Five-Year Plan of National Economy and Social Development and the Outline of Long-term Targets in 2010. The project involves the construction of Shenfu Dongsheng coalfield, Shenhuang railway, Huanghua port and power plant.	Good	The grand institutional strategy under implementation at present, showing that the direction of the development of Shenhua Group is right.
15.	Construction of Daqin railway. Daqin railway, 653 km long, from Datong to Qin Huangdao with Hanjia Muntain as the pivot, began to be built in 1985 and was finished in 1992. It passes across Fengsha railway in Huailai of Hebei province, Jing-Tong railway and Jing-Cheng railway in Beijing suburb. With annual freight volume of 100 billion ton, Daqin railway, built with advanced technology and equipment of international standard of 1980s, is an important avenue to transport the coal from Yanping, Pingsuo, Inner Mongolia and Ningxia to the outside.	Good	An important role in transporting coal from west to east and to the outside.
16.	Coal Department: total contract for the input and output of coal mines under unified distribution. (1985)	Fairly Good	Increase in coal output, decrease in the input and loss subsidy. Without specific rules, the problem of loss in coal mines remains unresolved and the plans of coal industry and market policies are not coordinated despite the relaxation of a part of coal price in the later period of contraction as a way of solving the problem of coal mine operation.
17.	The State Council: Notice of the State Council on Relevant Issues of Closing Illegal and Irrationally-distributed Coal Mines (the State Council [1998] No 43) (Dec. 3, 1998)	Poor	Active role in ensuring the safety of coal mines. Insufficient implementation owing to big resistance, and contradiction between closing mines and production.

18.	The State Council: 65 coal projects were bankrupted and closed in the whole country, with accounted production capacity of 40 million ton.	Fairly Good	Elimination of enterprises with exhausted resources or resources of poor quality, no market and serious insolvency. Poor arrangement for the placement of employees.
19.	The State Council: Policies and Rules of Turning Creditor to Stockholders in the Coal Enterprises. (1999.8.)	Poor	Non-performing loans effectively solved, resulting in the decrease in the debt ratio of coal enterprises. But the problems of production and low efficiency not settled once and for all. Turn of the pressure of creditor's right into that of stockholder's right.
Ⅳ Oil and Gas			
20.	On June 3, 1981, the State Council adopted the output contract of crude oil of 100 million ton in the oil industry.	Good	The funds that were raised during the period from 1981 to 1985 accounting to 11.73 billion Yuan equal to 93 percent of the state investment in the corresponding period.
21.	West-to-East Pipeline	Not Ready For Assessment	
22.	Exploration of the coal bed gas	Poor	Slow progress in the development of the coal bed gas.
23.	Compressed fuel oil	Fairly Good	Substitute for resources of oil.
Ⅴ Power			
24.	Power Law of the People's Republic of China, presidential decree NO 60, Dec. 28, 1995	Fairly Good	Legal guarantee of the development of the power sector; the need of improvement to adapt to the changes of external environment.
25.	The State Council: Provisional Regulations on Building Power Plant by Fundraising and Practicing Multiple Electricity Prices (State Development [1985] NO 72 May 23, 1985)	Fairly Good	Change of the single-mode investment system of the past; management chaos in the course of execution.
26.	Three Gorges Project. On April 3, 1992, the 5th session of the 7th National People's Congress discussed and passed Resolution of Three Gorges Project Construction. On Dec. 14, 1994, Three Gorges project officially went into operation on the basis of early-phase preparation. The project was of three phases and scheduled to be completed in 17 years. The total installed capacity of Three Gorges Hydropower Plant was 18.2 million KW, with annual average generated electric power production of 84.68 billion kWh.	Not Ready For Assessment	

27.	As the first large-sized nuclear station for commercial use built with funds, equipment and technology introduced from foreign countries, Daya Bay Nuclear Power Station, with the total investment of $ 4 billion Yuan, was one of the largest joint ventures since the reform and opening up. The nuclear power station was equipped with two Water-Pressure Reactor units with the capacity of each unit of 984 MWe. On Aug. 7, 1987, the project officially went into operation. On Feb 1, 1994 and on May 6, 1994, the two units were put into commercial production in succession. The annual generated electric power production of Guangdong Daya Bay Nuclear Power Station exceeds 10 billion kWh, of which 70 percent is transmitted to Hongkong and 30 percent to Guangdong power grids.	Good	A new chapter of the use of international technology and peaceful use of nuclear power; model of using foreign investment in the power sector.
28.	Construction and transformation of rural power grids. On July 8, 1998, State Development Planning Commission issued Notice of Acceleration of Construction and Transformation of Rural Power Grids (Electricity Planning Commission [1998] NO 73). In the efforts of the construction and transformation of rural power grids, priority should be given to the transformation of low-tension network (10 thousand volt and below) on the premise of unified planning and standards, and the development of networks of different voltage levels should be coordinated in order to ensure the economy, reliability and safety of rural power supply.	Good	During the three years' efforts, the first projects of construction and transformation of rural power grids covered more than 2400 counties by the end of 2001, enabling electric power accessible to 13.8 million people, making the rate of tear and wear of low-tension network generally decrease from 20%-30% to 12% below and the rural household electricity price decline by 0.13 Yuan/1 kWh on average. In more than three years, the volume of electricity consumption in rural areas increased at the speed of 10%, and even 20% in some parts of the areas, much higher than that of the whole country, giving impetus to the development of rural economy.
29.	Electricity Transmission from West to East. 1. North Avenue: electricity transmitted from the coal bases in western Inner Mongolia, Shanxi and Shaanxi and power plants located in Gongbo Gorge and La Xiwa in the upper reaches of the Yellow River to the load center of Beijing, Tianjing and Tangshan. 2. Middle Avenue: electricity transmitted from 22 hydropower stations that are to be built along the Yangtze River, through powerful and concentrated networks, to central China, east China, Fujian and Guangdong. 3. South Avenue: electricity transmitted mainly from Yunnan, Guizhou and Guangxi where hydropower is to be developed, and complementarily from Guizhou where thermo power is to be developed to load center of east areas such as Guangdong. The start of the construction of the power station in Wu River basin in Nov. 2000 was the prologue to East-to-West Transmission construction.	Not Ready For Assessment	

30.	Establishment of Huaneng Group with the special coal-substitute-for-oil funds. As a comprehensive large-sized state-owned group centered on electric power, China Huaneng Group was established under the coal-substitute-for-oil industry policy and with the special funds. Huaneng Companies were successively established after 1985 and the State Council approved the formal establishment of China Huaneng Group in 1988 with China Huaneng Group company as its nuclear enterprise. China Huaneng Group was placed in the list of the first national pilot units of large-sized enterprises in 1991 and joined the newly established National Power Group in 1996. Presently, the Group is constituted by China Huaneng Group, as its core, nine member companies; hundreds of sub companies located in every corner of China, several branches and overseas affiliates.	Good	A new page of using foreign investment in the power sector; change of the single mode of developing electricity.
31.	State Planning Commission and The Ministry of Energy issued Notice of Strict Restrictions on Construction of Small Condensing Thermal Power Plant (The Ministry of Energy [1989] NO 135) in March 1989. The General Office of the State Council disseminated the Notice of Issues Concerning the Closing down Small Thermal Power Unites on May 15, 1999.	Fairly Good	Proper motivation and target; certain effects of restraining the construction of small thermal power plants in the area which was covered by big power grids; lack of adequate and powerful coordinated measures and implementation.
Ⅵ Rural Energy and New Energy			
32.	The former Development Planning Commission proposed the principle of energy development of "suiting measures to local conditions, complementing with multiple energy resources, comprehensive utilization and stressing actual results" in the 6th Five-Year plan in 1982.	Good	Having Been brought to the long-term plan of national social and economic development; having been generally carried out step by step.
33.	On Dec. 1983, the State Council decided to set up 100 pilot counties to be accessible to electricity and gas in rural areas.	Good	Feasible and practical policy with remarkable effects.
34.	In 1990, The former State Planning Commission made the 8th Five-Year Plan, the start of comprehensive county-level construction of rural energy.	Fairly Good	Bringing the rural energy construction to the long-term plan of national social and economic development and being carried out step by step with good results.
35.	Advices on Strengthening the Construction of Rural Energy (Dec 30, 1986，the Commission of National Economy [1986] NO806) was passed in the working meeting of energy saving and approved by the State Council.	Good	Increase in utilization efficiency of rural energy; improvement of the quality of life in rural areas; protection of rural ecological environment.
36.	The State Planning Commission, the Commission of Science and the Commission for National Economy and Trade proposed in 1995 the Outline of Development of New Energy and Renewable Energy during the Period between 1996 and 2010.	Fairly Good	The outline proposed by three commissions could be brought to the long-term plan of national social and economic development and be carried out step by step.
Ⅶ Energy Efficiency and Energy Saving			

37.	In Nov. 1997, the National People's Congress promulgated Energy Saving Law of the People's Republic of China, stipulating the implementation on Jan. 1 1998.	Fairly Good	Strengthening in an all-around way the legal system of energy saving, increase in utilization efficiency, improvement in economic performance and alleviation in environmental pollution. But the results were not desirable.
38.	Provisional Regulations on Management of Energy Saving (The State Council [1986] NO 4) Jan. 12, 1986	Good	Strengthening in an all-around way the legal system of energy saving, increase in utilization efficiency, improvement in economic performance and protection of environment.
39.	Regulations on Joint Development of Thermal Power and Electric Power (the State Planning Commission, the Commission for National Economy and Trade, the Power Department, the Architecture Department [1998] NO 220) Feb. 17, 1998.	Fairly Good	Increase in utilization efficiency and alleviation in environmental pollution. But the results were not ideal due to unpractical thermal load or big seasonal difference.
40.	Regulations on Strengthening the Electricity Saving was issued by the State Council and disseminated to State Development Planning Commission and the Commission for National Economy on March 30, 1987.	Good	Saving of electricity and coal, alleviation in the contradiction between supply and demand and environmental improvement.
41.	Certification Management Approaches on Energy Saving Products (The State Quality and Technology Control Bureau: quality inspection letter [1999] NO 32) Feb 11, 1999	Fairly Good	The production and promotion of energy-saving products was Accelerated, but the promotion and the implementation and promotion of the certification work needed improvement.
42.	The Architecture Department, the State Planning Commission, the Commission for National Economy and Trade, the State Tax Bureau issued Design Standard for Civil Architecture (heating and residence) [1997] NO 31	Poor	Long-term significance in energy saving and alleviation of urban atmospheric pollution with promotion of energy-saving building. Little implementation Poor results.
43.	Green Lighting Project. Implementation Program of China Green Lighting Project (the Commission for National Economy and Trade [1996] NO 619) Sep. 18, 1996; Advice on Promotion of Green Lighting Project (the Commission for National Economy and Trade, the Architecture Department and the State Quality and Technology Control Bureau [2000] NO223) March 16, 2000.	Good	Stepping-up of the energy saving efforts under government's guidance and according to market mechanism. Electricity Saving and alleviation in environmental pollution.
44.	Pilot energy service company. The former Commission for National Economy and Trade, the World Bank and the Global Environment Funds jointly organized large-scaled international cooperation project in order to introduce and promote energy management and energy saving service mechanism. In 1997, Energy Saving Service Company was established in Beijing, Liaoning and Shandong.	Fairly Good	Stepping-up of the energy saving efforts under government's guidance and according to market mechanism. But limited circle of experiment.

Ⅷ Energy, Safety and Health			
45.	Atmospheric Pollution Prevention Law of the People's Republic of China was passed in Sep. 1987 and amended in 1995. The newly amended law was passed in the 15th session of the 9th National People's Congress and implemented on Sep. 1, 2000.	Fairly Good	Legal stress on environment and constraint on serious pollution. But the implementation needed to be strengthened.
46.	Control over total pollution emission volume in the acid rain zone and CO2 control zone. The State Environmental Protection Bureau published the Program of Action in accordance with the Reply to Issues in the Acid Rain Zone and CO2 Control Zone of the State Council (the State Environmental Protection Bureau [1982] NO 27) April 24, 1998.	Not Ready For Assessment	
47.	In accordance with Environmental Protection Law of the People's Republic of China (on trial), the Commission for Environmental Protection of the State Council, the State Planning Commission, the Commission for National Economy jointly issued Management Approaches on Environmental Protection of Construction Project on March 26, 1986.	Good	237 thousand new projects in 2002, and the executive rate of the environmental effects appraisal of 98 percent.
48.	In accordance with Environmental Protection Law of the People's Republic of China (Trial), the State Council issued the Provisional Rules of Charges for Sewage Fees NO1982-21 on Feb. 5, 1982. The enterprises and institutions that exceed sewage emission standard are required to pay sewage emission fee; other sewage institutions are required to pay charges for smoke and dust emitted from heating boiler. Those sewage institutions who pay sewage fees are not exempted from responsibilities of sewage control and damages compensation and other responsibilities stipulated by law.	Fairly Good	In 2002, there were 9180 thousand institutions that paid charges for sewage emission. The total sewage emission fee accounted for 6.74 billion Yuan, among which 6.66 billion Yuan were used for sewage control. Low standard in sewage charge gave insufficient incentive for enterprises to voluntarily build pollution control/ management facilities.
49.	Regulations on Land Re-cultivation (the State Council NO19) were issued on Nov. 8, 1998 in efforts to step up land re-cultivation and improve ecological environment.	Poor	Destruction of land in the course of energy development was not stopped at the root.
50.	Mine Safety Law of People's Republic of China was passed by the 28th session of the standing committee of the National People's Congress on Nov. 7, 1992.	Poor	Successive occurrence of incidents in coal mines.
51.	In accordance with Coal Law and Mine Safety Law, Rules of Coal Mines Safety Inspection was passed in the 32nd permanent meeting of the State Council on Nov. 1, 2000, issued by the State Council on Nov. 7, 2000 as the State Council Decree NO 296 and implemented on Dec. 1, 2000.	Poor	Successive occurrence of incidents in coal mines.
Ⅸ System Reform			

52.	Coal system reform	Poor	Proper direction, specific goals and remarkable effects; low efficiency of the coal industry with delegation of all the power to coal enterprises, unfit for the position of basic energy; difficulties in the establishment of new policy control mechanism; shift of responsibilities of intrinsic problems in the coal industry without being settled once and for all.
53.	Restructure of three big oil companies to stock companies	Fairly Good	Oil enterprises restructure following international practice and adapting to the structural reform; constraint on competence owing to regional partition.
54.	Separation of enterprises from government and introduction of competence into the power sector	Not Ready For Assessment	
55.	Social security system reform in coal enterprises	Fairly Good	Active role in ensuring the distribution of adequate pension on time to the retired and laid-off workers; no settlement at the root.
56.	Reform of the State Council institutions	Fairly Good	General conformity to the needs for economic reform; lack of a special organ in the department responsible for energy policy making.
Ⅹ Economic Policies			
57.	Capital construction on loans rather than allocation	Fairly Good	Important role in accelerating the development of energy sector by gradually following international practice, tightening up the supervision and management of the investment in energy projects and relaxing restrictions on the authority of decision making of enterprises' investment.
58.	Relaxation of coal prices	Fairly Good	The earliest industry that introduced market mechanism in energy sector, regulating relations between supply and demand through market.
59.	Loss subsidy to the key state-owned coal mines	Fairly Good	Maintenance of stability in the coal industry; ensuring the successful transfer of power to the enterprises; freeing enterprises that excel in economic performance from unwarranted control. The policy of the subsidy feature of the planned economy; manifestation of no thoroughness in the reform of market economy.
60.	Oil prices reform	Fairly Good	Pricing mechanism generally following international practice.

61.	Electricity price reform	Poor	Chaos in electricity price remaining unchanged; reform target remaining unachievable.
62.	Tax preference in the energy sector	Fairly Good	As the main area to attract foreign investment, the energy sector enjoyed tax preference with the support of foreign investment policy.
Ⅺ Opening Up			
63.	Use of foreign investment	Fairly Good	Attraction of foreign investment in energy development; but withdrawal of a lot of foreign investment one after another.
64.	Regulations of the People's Republic of China on Exploration of Offshore Oil by Foreign Cooperation (Jan. 30, 1982)	Good	Realization of opening up
65.	Regulations on Exploration of Land Oil by Foreign Cooperation (Oct. 1993) the State Council: [1993] NO 131	Poor	Realization of mainland opening up in the oil industry.
66.	Exploration of overseas oil	Fairly Good	Realization of opening up, introduction of international technology and management methods and increase in oil supply.
67.	Promises made by oil department on the entry into WTO	Not Ready For Assessment	
68.	Tax refund on coal export	Good	With strong flexibility, interest of coal enterprises guaranteed and the whole interest of the country considered; alleviation of the present economic pressure facing enterprises; creation of favorable conditions in pushing forward the future reform. Problems of poor management and bad economic performance not resolved at the root.

Assessment results show that:

The Chinese government has attached great importance to energy, thought highly of the significant position of energy in the national economy and established solid foundation for the development of energy.

The Ninth Five-Year Plan of National Economic and Social Development and the Outline of Long-term Target in 2010 proposed that "energy-saving and development should be placed with equal importance with energy-saving as the priority; great efforts should be made to restructure energy production and consumption; spread advanced technology and improve energy production efficiency; synchronize the energy development and environmental management; continue to rationalize the price of energy products. The energy construction should be centered on electric power and based on coal, and greater efforts should be made to explore and develop oil and natural gas and to develop new energy."

1. Main successful experiences

(1) Attach importance to the energy issue, make energy the strategic focus in the economic and social development and thus greatly promote the development of the energy industry

In 1980, Deng Xiaoping pointed out that “The energy issue is of the first importance in the economy”. In 1982, the 12th National Congress of the CPC made energy strategic the focus of the social and economic development. The top-level decision-makers, with basic understanding conforming to reality, correct the errors in judgment made in the past and greatly promote the energy development.

(2) Bring into full play the initiative of the department, local areas and individuals and raise funds through diversified channels to develop the energy industry

The policies of “raising funds for developing electricity” and “mining coal by the mass” encourage governments at all levels and all circles of society to invest in the energy industry, which leads to the rapid growth of the energy production, the alleviation of energy shortage and the transition in the energy industry from the mono-investment system to the multi-investment system.

(3) Intensify the efforts at the construction of energy bases

In accordance with the actual situation in China, the energy supply should mainly depend on large modern enterprises and the solution of transportation should be found at the same time. Concentrating on the construction of energy bases, the government decided to construct coal bases, such as Shanxi Coal Base, to exploit oil and gas fields in the Northwest of China and to construct key power plants, including the Three Gorges Project and nuclear power station, and grids. During the period 1979-1998, Shanxi energy industry attracted the total investment amounting to RMB94 billion, with the output of raw coal reaching 4.9 billion tons, coke 400 millions tons, electricity 611 billion kWh, the total volume of coal export 3.17 billion tons, electricity export 124 billion kWh. It gave a powerful push to the region’s economic development and played a significant role in promoting the development of national economy.

(4) Put emphasis on the energy construction in rural areas

Rural energy, a weak link in the energy development of China in planned economy, was brought high on the agenda by the government in the early 1980s. In 1984, the State Council established an ad hoc leading group for rural energy and decided to mainly build small power plants, solve the rural electricity difficulties and accelerate the development of the rural economy in accordance with the principle of multiple energy complementation and adoption of different methods according to different local conditions. In 1978, nearly half of the peasant households across the whole country had no access to energy for 3-6 months, and 450 million people had no access to electricity but the number reduced to 22 million in 2000.

(5) Start to pay attention to the development and utilization of quality energy resources such as nuclear power, hydropower and natural gas

The Qinshan Nuclear Power Station, the Daya Bay Nuclear Power Station, Ⅱ Phase of Qinshan Nuclear Power Station, Ⅲ Phase of Qinshan Nuclear Power Station and Ling’ao Nuclear Power Station were successively constructed and put into production. Hydropower was developed with great efforts and the development of natural gas was

accelerated, leading to big increase in the production of hydropower, nuclear power and natural gas from 42.8Mtce in 1980 to 121.2Mtce in 2000. In 1992, China began to produce the nuclear power.

(6) Promote energy conservation in accordance with the market institution and with the guidance of government

With the guidance of the government and in accordance with the market mechanism, the efforts of saving energy have achieved great results. Governmental guidance includes organization and coordination, promotion and education, marker supervision and economic incentive. Market mechanism means market pricing and introduction of new mechanism on the basis of the market. “The Green Lighting Program” proves to be a successful case.

(7) Strengthen environmental law and regulations and promote clean and efficient utilization of energy

The implementation of environmental law, such as Atmospheric Pollution Prevention and Control, atmospheric pollution emission standards and total volume control play an important role in the promotion of energy saving and clean energy.

(8) Actively cooperate with foreign countries

The energy industry remains to be the major attractor foreign investment. In 1982, Regulations on Offshore Oil Exploitation by Foreign Cooperation was promulgated. In July 1999, the State Council decided to impose enterprise revenue tax at the rate of 15% on the foreign-invested enterprises that are engaged in energy and transport construction in China. The practice of using foreign investment to develop electricity was encouraged in the electric power industry. During the period between 1980 and 2000, foreign investment of more than 3 billion USD was used in the energy sector. The attraction of foreign funds and introduction of advanced technology and management modes played an important role in the modernization of China’s energy sector.

2. Main lessons

The past 20-odd years witness much successful experiences in energy strategies and policies, however, not all the energy strategies and policies attain desirable results in their implementation because of the sluggish decision-making ideological transition, insufficient democracy in the decision-making process and slack law enforcement. The follows are main lessons:

(1) Lack of comprehensive national energy strategies that has legal effect

Because the comprehensive energy strategies has little legal effect, a series of problems occurs in the implementation and management of energy policies, including rash and random policy-making, lack of coordination in policies, barriers existing between regions or between departments, endless controversies over some major energy policies, and strategic disorientation in the selection of key technology.

(2) Lack of democratic and scientific policy-making mechanism and process

Since the reform and opening up, despite obvious progress in decision-making system and procedures of energy policies, the energy sector has been sometimes influenced by planed economy system and is still lack of democratic and scientific decision-making process and procedures. For example, the decision in 1996 of not building new conventional coal-fueled plants for three years was not fully attested by the experts. Still,

by 2003 when there was a national electric supply shortage, the department concerned made the decision that the units of 30 million KW were annually put into production, which was lack of democratic and scientific decision-making process. A major reason for energy decision-making mistakes is that there used to be no legal public participation procedures, especially during the decision-making process on major energy issues.

(3) Sluggish in the ideological transition of the policy-making and planning

In 1981, the fourth session of the Fifth National People's Congress established "the principle to solve the energy problems was that energy development and energy-saving were given equal stress and energy-saving was put in the first place." In March 1996, "The Ninth Five-Year Plan of National Economy and Social Development and the Outline of Long-term Targets in 2010" pointed out the general principle that "Energy development and energy-saving are given equal importance with energy-saving of top priority. However, the principle of giving energy-saving first priority wasn't well carried out. The guiding idea and approaches failed to adapt to the needs of new situations.

(4) Weak in the supervision of law enforcement

Law on Energy Conservation that has been implemented for six years, but most articles come out with poor effect and some even were not put into effect. During the period from 1986 to 2000 when the Standards on Energy Efficiency for Building Design was promulgated, the area of energy-efficient constructions only accounted for 2.3 percent.

(5) Lack of coordination and relevant policies supporting energy policies, and unsynchronized reform

There is lack of relevant policies supporting energy policies, such as among coal, electricity and transportation. Unsynchronized reform results in many problems and contradictions remaining unresolved.

(6) Lack of unified management and coordination in the implementation of energy policies, such as clean coal technology

The problems of departmental separation, industry monopoly and lack of unified energy management organizations and comprehensive decision-making system, which occurred in the planned economy, placed big obstacles in the implementation of trans-departmental and trans-industrial energy policies. For example, some policies such as architectural energy saving and clean coal technique couldn't be fully carries out. Some, such as the research and development of energy, were overlapped and caused a lot of waste. And some, such as the development and utilization of renewable energy, were lack of unified authority, and as a result, the planning was hardly practicable.

3. Suggestions

China will make great efforts to build the perfect socialist market economic system in a step-by-step manner. Therefore, the focus of China's energy policies should be shifted from the quantitative expansion of energy supply to the increase in energy efficiency, optimization of energy structure, development of clean energy and renewable energy. To this end, we put forward the following suggestions:

(1) Promotion of more democratic and scientific decision making process

It is of no benefit to the reasonable energy development and utilization because of the

low level of democracy in the decision making process in energy sector. First, owing to sever links between various departments and regions and divided authority in administration, the comprehensive decision making capability and mechanism is lack of effectiveness, coordination and unification. Second, academic institutions and nongovernmental advisory organizations play insufficient role. Third, decision-making advisory institutions are insufficiently independent and socialized, and staff composition and knowledge structure are not reasonable. Fourth, decision-making approaches and planning methods are legged behind. Suggestions are put forward that decision-making process and mechanism should be legislated, organization law on governmental institution established, major decisions reviewed by the National People's Congress and public participation extended. Modern decision-making advisory system is required to be established in order to ensure scientific and democratic decision-making process. First, there should be overall planning, reasonable distribution and coordination modern decision-making advisory system. Second, flexible and efficient system of personnel placement should be established in greater efforts at the training and reserving of decision-making advisory talents. Third, effective measures should be adopted to socialize the decision-making consultation and to ensure the independent decision-making study, decision-making system free from constraints of the authorities' will as well as the objective and scientific decision-making consultation.

(2) Creation of national comprehensive energy development strategy

Given the target of building up the well-off society in an all-round way, the energy development will be faced with serious challenge. First, **petrochemical fuels** are excessively depended upon, so that it has a negative impact on sustained development. Second, energy environment is under great pressure. Third, energy safety, especially oil safety, becomes more and more important.

Lack of comprehensive energy strategy to guide the energy development, a series of decision-making problems and management problems occur. Lack of coordination in relevant departments and regional and departmental partition, the controversies over a series of decision-making problems and management problems are endless. These problems result in improper macro decision-making, increasing uncertainty of energy development and serious waste. Facing the new situation of deepening market reform and governmental function transformation, those problems become more striking on China's entry into WTO. Therefore, it is a pressing task to study and create the national comprehensive energy development strategy.

(3) Establishment of the decision making and planning system of energy, economy and environment

The coordination of energy, economy and environment is a guarantee to implement sustained development strategy. But at present, the three elements are divorced from each other, the reform of planning and decision-making system is lagged behind the reform of economy system because there is lack of comprehensive decision-making and planning system, the procedures are not standard, functions of the government and market are not well defined and the government and market are lack of coordination. It is required that a comprehensive decision-making and planning system be established, cost-efficiency analysis and environmental and social effects appraisal be made in energy planning, the

method of comprehensive planning be promoted, resources and environment be taken into national economy accounting system, the environmental cost be added to energy price, environmental destruction by energy production and utilization be prevented by making better use of economic levers and the energy, economy and environment statistical system follow international practice.

(4) Establishment of a unified management institution and coordinated energy decision-making system

China is dealing with serious energy challenge by pushing forward the market reform. In recent years, the energy management system has undergone great changes with accelerating market reform of energy system. The major functions of the government are economic regulation, market supervision, social management and public service.

Despite reform and restructure in China's energy management institutions, there still exist organizational overlapping without unified administration, multiple leadership and inexplicit defining of post. The energy sector, one of the most important basic industries, is so wide-ranging, comprehensive and internationally influential that centralization, coordination and unification are required in the creation of strategies, policies and plans, market accession, market and industry supervision, information collection and analysis, energy safety and major projects construction. Therefore, it is essential to set up a special energy management institution, on basis of which a coordinated energy decision-making system is established.

(5) Enhancement of law enforcement and supervision

A few laws, rules and standards of energy have been made in China since 1990, but it is not uncommon that the law is not obeyed, enforcement of law is not strict, the cost of unlawful practice is low and the cost of lawful practice is high. Especially in some regions, oil and mineral resources are excessively and randomly explored, coal resources are destroyed and wasted; emmission exceeds standards and, as a result, causes heavy pllution; and there is recurrence of major safty incidents caused by operation contrary to the instruction. Many terms of Energy Saving Law are poorly enforced or not enforced at all. The implementation of Regulations on Energy Saving of Civil Architecture is kept adrift. Therefore, greater efforts must be made to strengthen the law enforcement supervision system and the law enforcement and supervision organizations, to eliminate regional protection, and to investigate and solve the problem of low cost of unlawful practice and high cost of lawful practice. Only in this way will the law be obeyed, enforcement of law be strict, and lawbreakers be prosecuted.

Ⅱ. Coal Policy Evaluation

1. Principles and standards of the Coal Policy evaluation

(1) Evaluation Principles

1) The principle of coordination with the energy supply and demand of national development

The establishment of basic national policy in the coal industry requires an overall view of the energy supply and demand, in which the basic status and function of coal industry should be clearly perceived.

2) The principle of coordination with the development of national economy

Coal is one of the major basic energy resources of China and the coal industry is one of its basic industries. The most fundamental principle of the policy evaluation of coal industry is whether this policy will produce a stable, sustainable, and economical supply of coal energy, in a way that the sustainable development of the national economy and the development of the coal industry are both assured.

3) The principle of coordination of short-term and long-tern objectives

As a basic industry, the exploitation of coal industry requires a large sum of investment and a long period of circulation. Limited flexibility is apparent in both the industry and private enterprises. Discordance of the short-term and long-tern objectives will result in the coordination of the development of national economy and the coal industry and enterprises, or even further counteract the development of the national economy. The evaluation of the national policy of coal industry should take into consideration whether the policy matches the economic development and the features of the exploitation and production of the coal industry, as well as whether the current objectives match the national long-term objectives.

4) The principle of coordination with policies of related industries

The policy in coal industry should be in accordance with related industries, especially the policies in electricity and transportation industry, and the changes in the outer environment.

(2) Evaluation Standards

1) Policy motivation and objective match the reality

The policy evaluation of the coal industry should first involve analysis as to whether the policy motivation matches the reality of the coal industry, and then analysis as to whether the policy objective foresees the demands of future development.

2) The policy objective matches the outcome

Policy evaluation of the coal industry should examine whether the policy matches the reality and requirement for development of China as well as that whether the policy outcome matches the expected objectives.

3) The cost of the policy objective

Policy evaluation of the coal industry should also involve analysis of the economical, social, and environmental costs of the policy objectives.

4) Coordination of policies

The policy evaluation of coal industry should further inspect the coordination of the policy, including the coordination of different policies within the policy industry as well as the coordination of coal policy and other related policies.

2. Evolution of Coal Policies

(1) Coal policies in the 1980s

At the beginning of the 1980s, the major objectives of coal policy was to resume the damaged production order and the administrative system to accelerate the development of the coal industry, meet the rapidly increased demand of coal, and initiate the reform in the administrative order.

1) Construction of the energy base in Shanxi Province

In December 1982, the fifth session of the fifth People's Congress adopted the Sixth Five-Year Plan, in which the construction of a heavy chemical industry base was approved. This industry base was centered in Shanxi and covers the western part of Inner Mongolia, northern part of Shaanxi province, Ningxia autonomous region, and the western part of Henan province. The Program Office of Shanxi Energy base was established in the States Council.

2) Encouragement of the development of the township coal mines

In April 1983, the State Council put forward the Eight Regulations of the Acceleration of the Development of Small-sized Coal Mines. On June 28th, the Department of Coal Industry promulgated, "Notice of a More Flexible Policy and Free Development of Local Coal Mine." On November 6th, the Notice on Support of the Coal Mine by the Masses was also adopted. The central government put forwarded the policy of constructing big, medium, and small coal mines run by the state, collective communities, and individuals.

This policy greatly worked in favor of the township coalmines. The production of the township coal mine increased rapidly and reached 273 million tons in 1985, 160 million tons more than that of 1980.

3) Overall contract of coal of unified distribution

Since 1985, overall contract of input and output had been introduced to what were nominated as Key State-run Mines. The Department of Coal Industry made contract with the state and then the enterprises made contract with the Department of Coal Industry. The contract included production and planed loss. The first term ended in 1990.

(2) Coal Policies in the 1990s

Coal policies in 1990s were mainly about the system reform and the structural adjustment.

1) Liberalizing the planned coal price

At the end of 1993, the State Council adopted the important policy of " liberalizing the coal price and withdrawing the lost subsides in three years and putting coal enterprises to the market". This policy accelerated the process the coal enterprises' entering into the market and made the coal industry be faced with new challenges and opportunities.

2) Reform of the financial and taxation system

In July 1993, General Rule of Enterprise Finance and General Rule of Enterprise Accounting were introduced in the coal enterprises. The capital reserves system was set up and the multiple channels of simple reproducing capital were replaced by a measure of

drawing capital from cost.

In 1994, a new taxation system was established. Coal tax was changed from production tax with a tax ratio of 3% in to a value-added tax with a tax ratio of 13%. This change produced a great impact on the coal enterprises and 337 billion RMB of the state-run key coal enterprises' income became value-added tax. The enterprise income tax of the state-run key coal enterprises was first levied and then returned during the period of contract and was levied at the ratio of 33% after the contract.

3) Investment system reform

In 1993, the National Development Bank was established and started offering the state-run key mine policy loan as the infrastructure investment.

4) Administrative system reform

In 1992, the Enterprise Law and the Regulation of Transition of the Operating System of the State-run Enterprises were adopted. In 1999, experiments of modern enterprises system and pension system were conducted.

5) Decentralization of the management of the state-run key coal enterprises

Between July 24th and August 28th of 1998, the administration of 94 state run key mines and 176 enterprises, 237.9 billion RMB capital, 3.2 million employees, and 1.33 million retired workers was de-centralized and given to the local authorities.

6) Closing-down of the illegal small-sized mine

In November 1998, the State Council decided to close down the 25800 illegal and mal-distributed small-sized mines and reduced the production 250 million ton. Mal-distributed small-sized mines are those that produce high-sulfur and high-ash coals in the state-run mine field.

7) Bankruptcy of state-run key coal mines

In 1999, experimental bankrupt of state-run key mines was initiated. At that time, among the 600 state-run key coal mine, there are more than 120 mine were funning out of recourse, facing grave deficit, or producing high-sulfur and high-ash mine. Their annul productivity was 90 million tons and the actual production in 1998 was 50 million tons. Their deficit was 3.5 billion RMB, which accounted 88% of the total deficit of the state-run key mines. Those mines were closed down. Their loans were cancelled after verification and employees and retired workers were settled.

3. Evolution of major coal policies

(1) Encourage township coal mine

The development of township coal mines greatly contribute to the solving of the national shortage problem. Between 1980-1986, the production of township coal mines increased by 501 million tons, which accounts for 66% of the national production increase of coal mining, as well as 48% of the national non renewable energy production increase. Township coal industry played a contributive role in the economic and social development of rural areas, shared the government's burden of the investment in mining, improved the coal industry distribution, and provide the state-run coal industry with reform experience.

(2) Overall Contract of Coal industry

The overall contract in the coal industry is a policy of "delegating powers to lower levels and cut profit for the benefit of the customers" and rural contract system. This policy,

to some extent, enhances the enterprises' self-determination power, reinforces the outside stress and inner motivation of enterprises, abandons the planning system of coal distribution, and contributes to the development of the coal production. The output of the state-run key coalmines increased to 489 million tons in 1994 from 399 million tons in 1984. After the contract, coal mining enterprises solved many cost-increasing factors, including the cost increase caused by the length the mine goes to underground, as well as other factors, such as the increase of raw material price, employee salaries, and off-operating expenses. Coal enterprises received actual benefit. During the six years' contract period, the surplus saved accounted for 7.53 billion Yuan, including raised price for the coal output in excess of a production quota, contracted salary surplus and depreciation charge of over 3.5 Yuan per ton. Taking away 1.304 billion excessive deficit, the enterprises received 6.262 billion. Besides, the efficiency of state-run key coalmines reached 100 million tons per worker in 1986 and 155 billion tons per worker in 1994. There has been evidential improvement in the safety of coal mining. The death rate per one million tons' output reduced to 1.15 in 1994 from 3.99 in 1984.

The main problems lies in the overall contract are as follows,

Some of contract targets have not been realized, mainly because infrastructure investment greatly exceeded the needed investment of contract construction.

Overall contract was not able to solve the conflict between the fixed contract conditions and the changes of outside environment, which caused unequal distribution of benefit among enterprises.

Strong connections between government and enterprises, loss financial obligation catalyzed the short-term actions of the enterprises.

Increasing deficit caused by the increase of raw material price and the delay in the reform in the coal price.

(3) The Construction of the Shanxi Energy Base

The construction of the Shanxi Energy Base greatly contributed to the national economic development and energy supply. Between 1986 and 1996, the coal output of Shanxi Province (excluding export) accumulated to 2.225 billion tons, charcoal 103 million, electricity 86.9 KWH. The construction of the Shanxi base also contributed to the development of local economic and related industries, as well as infrastructure constructions, such as transportation.

(4) The Abandonment of Planned Coal Price

The abandonment of the planned coal price was a breakthrough in the reform of Chinese energy department, and produced a huge impact on the market-oriented of reform coal industry system and enterprises system innovation. However, due to the absence of efficient related reform measures, certain problems exist. Coal price was not able to reflect the total supply cost. The reforms of coal price and electricity price did not coordinate, Disputes between the prices of coal and electricity frequently happen. Disordered competition exited in the coal market. Expenses in circulation process kept at a high level.

(5) Closing Down the Illegal Small-size Coal Mines

Closing the illegal small-sized coalmines improved the structure of the coal industry and was of great significance in the development of the coal industry. However, certain problem should not be neglected: first, the support to the local financial income that used to

be supported by the small-sized coal mines; second, the compensation to the legal small-sized coal mines that had been closed down; third, the high unemployment and the possibly following debt disputes caused by closing down the collectively-funded coal mines.

Table 2-1: Comprehensive Evaluation of Coal Policies

Ⅰ The policy of Encouragement of the township Coal Mines	
Main Content	To motive all the possible positive factors, utilize all the resources at hand, and collect all the capital to construct big-sized, medium-sized, and small sized mines invested by the state, collective communities, and individuals. To line out huge areas of coal recourses to the local mines. The Department of Coal Industry and coal administrative department at provincial level should actively support the coalmines run by the public.
Basic Objectives	Objectives: To assure the increase of coal output and meet the market demand in a condition that no investment or less investment is coming from the state. To change the situation that the coal industry needs large investment and high consumption of human recourses, which can not be supported solely by the state. Outcome: There has been a decrease in the state's investment in coal industry for 20 years. Township coalmines gained rapid development and shared about 50% of the national coal output.
Costs	There were also many costs related to the development of the small-sized coal mines. All kinds of Small-sized operated in disordered manners. Illegal operations commonly exited. The average recycle rate was around 10% and wasted a lot of recourses. Mechanization level was low. Problems existed in most mines' safety facilities and accidents frequently happened. Small-sized mines coexisted with large mines and counteracted the production of large mines and even caused serious accidents in large mines. Small-sized mines commonly operated on unreasonable cost and even by illegal measures, therefore influenced the normal order of the production and operation of coal industry. A vicious circle has formed that large mines has no room for development if the small-sized mines are not closed down.
Achievements	The planed economic pattern of coal industry was broken down. A large sum of capital was invested by the public, thus reduced the state investment in coal industry. As a crucial industry for the economy, the coal industry has successfully supported the economic development.
Evaluation	Great achievement was made. However, the cost for it was high. At the beginning, as maintaining the stability of the traditional development pattern of the coal industry, this policy played an irreplaceable role in the search for new development patterns. However, this policy gradually went into a negative direction, mainly because the small-sized mines' advantage of independent operation was not integrated with the large mines' advantage of modern mass-exploration.
Ⅱ The Policy of the Construction of the Energy Base	
Main Content	To make overall plans of economic and social development inside the base from a general perspective of national economy. To coordinate the relations between the departments of the base and the relations between the base and the local authorities. To improve the productivity and combine the economy development of the planned area and that of the country.
Basic Objectives	To explore the nine mines with more than 10 billion tons of reservation in the 1.17 million square kilometers' area of the base. To construct the relevant heavy and chemical industry and transportation pipes. To improve the local economy as well as to meet the coal demand in the east region.

Costs	The local areas of the base have had grave environmental and water source problems. The problems became more serious when the base was constructed. Some areas suffer great damage in environment. Rivers and underground water was polluted, therefore, to some extend, counteracted the development of the comprehensive development of the economy.
Achievement	The base played a crucial role in solving the national energy shortage. 50.2% of the coal output increase of 360 million tons from 1980 to 1988 came from the energy base. New development was made in the construction of now mining areas. In 1987, the first session of the Pingshuo open-air mine was finished. It produces 1.5 billion tons of coal per year. Great progress was achieved in the construction of Dongsheng mine in Shenfu in 2000. Local heavy and chemical industry gain development and the transportation were optimized. Dalian-Qinhuangdao special heavy-loaded railroad, Qinghuangdao coal port, Shenfu-Huanghua railroad, and Huanghua port was constructed.
Evaluation	Taking into the consideration of the condition in the traditional economy, the construction of the Shanxi Energy Base was basically successful. However, since 1980, with the economic development, environmental and ecological problems gradually became serious. Local protection of the environment and ecology was not synchronized with the economic development. In 1990s, the environmental and ecological problems were exacerbated. At the end of 1990s, measure were taken in the protection the environment and ecology, however, There are still a lot of work needs to be done.
Ⅲ The Overall Contract of the Input and Output of the Coal of Unified Distribution	
Main Content	The Policy of overall contract was implemented in three steps. From 1985 to 1990, the contract objective included coal output, infrastructure investment and scale. In the contract, the state granted the enterprises with self-determination power in employment, interest distribution, and operation of production activities. Between 1991 and 1992, the contract objectives mainly included financial targets, especially the contracted quota of profits and losses, and counterworked the deficit increase.
Basic Objective	To realize the output increase target, to fulfill the financial operation target, and to put the enterprises to the market are the three main contents of the overall contract as well as emphasis of each step.
Costs	The state realized short-term objectives. However, due to the considerable consumption inside the coal enterprises and the insufficient investment in the production and safety facilities, the long-term productivity of the mines are restrained.
Achievement	The output objectives of the first step were realized. At the second step, deficit was only primarily achieved. At the third step, coal price was partly decentralized, however, it didn't produce much effect in the coal enterprises.
Evaluation	The state basically reached the short-term objectives. Output increased, investment was reduced, and deficit subsidies decreased. At later period of the contract, decentralization of the coal price was regarded as the solution of the operation problem in the coal industry. However, the lack of a detailed regulation resulted in the discordance of coal industry plans and market policies. It did have an impact on the economy development. However, it didn't solve the deficit problem of coal enterprises.
Ⅳ Decentralization of the Coal Price	
Main Content	In the following three years since, 1993, the state will decentralize the coal price and withdraw the deficit subsidy for the coal industry.

Basic Objectives	To solve the most prominent conflict in the overall contract policy, that is the insufficient investment in the coal industry from the state and the disability of the coal enterprises in the realization of product value by the free determination of the price. Decentralize the coal price, let the enterprises find their own position in the market, reach positive circulation, and provide stable and economical supply to the economy development.
Costs	From 1993 to the first half of 1997, the coal consumption increased, and the default increased at the same time. Since the second half of 1997, market demand of coal decreased, which resulted in the further exacerbation of the deficit in the coal enterprises and the state's ability to protect coal enterprises by price protection was also restrained.
Achievements	Except the price for key electricity plants, the coal price was decentralized. Coal price kept increase from 1993 to 1997, Deficit in the coal enterprises decreased, which made a good foundation for the states to decentralize the coal price for the key electricity plants.
Evaluation	Both policy motivation and objectives were in accordance with the direction of the reform for a market economy. Short-term objectives basically matched long-term objectives. The decentralization of coal price took place at a proper time. During the gradual decentralization, coal price was stably maintained and had a slight increase. The increase ranged was also within the durability of the society. Decentralization of coal price was achieved at relatively low economic and social costs.
Ⅴ The Policy of Enterprise Administration System Reform and Decentralization of State-run Key Enterprises in the Coal Industry	
Main Contents	In 1998, the State Council decided to decentralize the state-run key coal enterprises to the local authorities. From July 24th to August 28th, decentralization was basically achieved. The State Council signed summary documents of decentralization with the local governments of 20 province, autonomous regions, and municipal cities that had state-run key coal mines. 94 state-run key enterprises, along with 176 affiliated units, 237.9 billion RMB capital, 3.2 million employees, and 1.33 million retired workers, were decentralized to the local administration.
Basic Objectives	To realize the localized administration of state-run coal mines, further continue the policy of disconnection of governments and enterprises, and gradually transfer the non-business obligation to the local government and conduct the socialized administration.
Costs	The state's ability and measures of macro-regulation of coal industry and coal production was imperiled to some extent, therefore, a new regulation system was needed. Based on the supply and demand of coal in the market, each province tried to achieve balance within itself and further had influence on the national balance.
Achievements	Successfully accomplished the transformation of coal administrative system. Consolidated the economic obligation of the local government and enterprises. The burden on the state was largely shared. Redistribution of profit among enterprises was abandoned. Prepared for further market reform.
Evaluation	Direction was correct. Objectives were clear. Effect was evidential. However, there was difficulty in the establishment of new policy regulation mechanism. The obligation of intrinsic problem was transferred, but now solved.
Ⅵ the Policy of Control the Overall Coal Output, Closing Down and Decreasing Output	

Main Content	Closing down and decreasing output means to close down illegal and mal-distributed mines and to decrease the output to reduce the storage. Based on the past neatening of township mines, to strengthen the reform, to further adjust economic structure of coal industry, and to solve the problem of the overlapping construction of small-sized mines and the over plus of the overall coal output.
Basic Objectives	From November 1998 to the end of 1999, to close down 258000 illegal or mal-distributed small-sized coalmines, reduce the output by 250 million tons. To continue this policy in 2000 and keep the overall coal output less than 1 billion tons. To adjust the structure of coal industry and to solve the problem of over plus output. To solve the problem that a great portion of the productivity of the state-run key mines was left unused while the small-sized mines developed blindly. To reduce the over plus output produced by illegal exploitation of the small-sized mines. To achieve overall balance between the supply and demand of coal, and to optimize the structure of the coal industry. To establish normal production and management order of the coal industry. To create a favorable environment for the state-run key mines to disentangle with the current difficulties. To solve the problem of illegal mining, and production, the problem of insufficient safety facilities, and the problem caused by the small-sized mines' disordered competition in the production and management of coal industry.
Costs	Investment in coal production continued to be limited. The prediction for the variability of demand was insufficient. Due to the continuous demand, unclosed mines increased output excessively, which was one of the main reasons of the frequent-happening accidents.
Achievements	The number of mines was reduced to around 30 thousand from more than 80 thousand. The coal output was reduced to around 1 billion tons from around 1.3 billion tons. Adjustment was made in the production structure. The rate of the state-run mine output in the national overall output increased to more than 50%.
Evaluation	The objectives and motivations were correct. However, the prediction of the rebound of demand for coal was insufficient, which produced negative effects for the balance of supply and demand in the further. At present, small-sized mines cannot be eliminated from the coal production of China. The phenomenon of small-sized mines still exists and there is a great possibility of the emergence of unreasonable incidents. Simply closing down the mines will not solve this problem.
Ⅶ The Policy to Continue the Deficit Subsidies	
Main Content	Before the decentralization of the coal enterprises, each year, 1 Billion RMB from the profit of the profit-making enterprises was use as subsidies to the enterprises suffering deficit by the Department of Coal Industry. After the decentralization in 1998, according to the regulation of the State Council, the enterprises would no longer turn in their profit. Consequently, It is impossible to redistribute the profit among enterprises. Therefore, 1 billion RMB was appropriated from the central finance to subsidize the enterprises that suffer of deficit.
Basic Objectives	After the decentralization of the coal mines, the deficit-suffering enterprises would still be able to obtain subsidies according to the old standard. Therefore, the decentralization would not cause new problems in those enterprises.

Costs	Although the amount of the subsidies is not considerable, it still shows that there exist subsidy policies and actual subsidies in China. In the reform of the market economy, especially after China's entry into WTO, measures and contents of subsidy policy need to be changed, and the state will be faced with new policy reforms.
Achievements	Old method of using the profit of profit-making enterprises to subside deficit ones was changed. Coal enterprises will be more independent in the management. As to those deficit-suffering enterprises, the central government use subsidies to help them out. Therefore, the decentralization would not cause extra expenses to the local authorities.
Evaluation	This policy maintained the stability of the coal industry and assured the successful decentralization of the coal enterprises. It also thoroughly removed the burdens in the profit-making enterprises. However, the subsidy feature of planned economy, which shows that the market economy reform was not thoroughly conducted, also characterized this policy.
Ⅷ The Policy of Closing Down and Bankrupt	
Main Contents	Among all the coal enterprises formerly controlled by the central finance, 260 mines were running out of recourses, or produced high-sulfur and hi-ash coal, or had no possibility to solve deficit problem. Those mines should be gradually closed down and go bankrupt.
Basic Objectives	Completely solve the problems of the mines running out of recourses, improve the general management of the coal industry, and thoroughly solve the leftover problems.
Costs	In the bankrupt process of those enterprises, 9 billion RMB's loans were cancelled after verification. Central finance spent more 13 billion as bankrupt subsidies, mainly use in the employee settlement. However, the average subsidy received by each was relatively low, insufficient to cover living expenses in the future. All kinds of problems also lied in their re-employment. Many employees led a hard life.
Achievement	With the ratification of the State Council, 65 coal mining program were closed down and ran bankrupt by 2000. The evaluated productivity was around 40 million tons. Actual output of 1998 was 25 million. Deficit reached 2.5 billion RMB. 400 thousand employees were involved (including 250 thousand retired workers).
Evaluation	Effectively tried the closing-down and bankrupt methods of the coal enterprises. Solved a difficult problem in current coal industry and also accumulated experience for future actions. Exposed the problems in the coal industry's lack of plans for the establishment, development and closing-down of enterprises, as well as its inability of problem solving. Relaying on the state to solve the problem is not a fundamental solution.
Ⅸ the Policy to Encourage Coal Export	
Main Contents	In order to encourage the export of coal, four favorable policies was established. 1. To increase the ratio of coal export drawback from 9% to 13% 2. To exempt railway construction fund from the transportation of exported coal. 3. To exempt port construction fee from the exported coal. 4. To reduce the lading fee for the exported coal.
Basic Objectives	To realize exporting more than 80 million tons' coal and hold and keep a share in the international market. To use export balance to solve the domestic misbalance of supply and demand.
Costs	Rapid increase in export caused decrease in price, the enterprises didn't receive all the profit. Enterprises used the favorable policies to make profit. The inner motive of improving the economic efficiency by tapping one's own potential was not strong.

Achievements	The policy of encouraging export fully motivated coal enterprises' interest in exporting. 2000 witnessed a sharp increase in coal exporting, which accounted to 58.84 million tons. (Coal exporting reached the highest point in 2001 with 85.9 million tons exported. China became the second largest coal exporting country in the world).
Evaluation	The state's exporting-encouragement policy was generally correct. Considering the possible changes in the international and domestic market, this policy was valid for short period and had suitable extension. On one hand, it assured the interests of the coal enterprises, on the other hand, it took into the consideration of the overall national interests. It was a very flexible policy. However, encouragement in exporting will not thoroughly solve the coal enterprises' problem of low level of operation and low economic profit, though it could relive the current economic stress and provide favorable conditions for further reform in the future.
Ⅹ Safety Policy	
Main Contents	Included laws and regulations regarding to the safety, health, employment protection of coal mine workers. Also covers safety concerns in mining mountains and environment (such as radiation, landslide, and pollution), as well as injuries caused by mining accidents or environmental problems. The "Regulation on Coal Mine Safety Inspection" was of great importance. Concerned authorities could conduct independent implementation on safety issues in accordance with it.
Objectives	To secure the safety of the mining fields and peripheral areas. To assure the safety of employees and non-employees that could be possibly affected. To reduce the damage to the employees to the minimum.
Costs	None
Achievements	Employment protection of the workers was well conducted. Occupational Diseases were effectively controlled. Medical conditions and health conditions of the employees gained continuous development. However, little progress was made in the safety of mining fields.
Evaluation	The security policy system of the coal mine was relatively complete. The implementation of employment security policy was relatively satisfactory. However, mining accidents still happened at a high frequency, which cause injury to the health and life of the workers as well as damage to the mining field.

Ⅲ Review and Assessment of Power Policies

1. Development of power sector in China since 1980

Chinese government has always put the power sector at the place of basic industry of national economy and set up a series of principles and policies for the development of power sector, such as "Power sector is vanguard industry", "Power sector is the vanguard", "the development of energy industry should be centered on electricity" and "power sector needs to be developed in advance". Under the guidance of these principles, the power sector grew rapidly and a rather perfect and preliminary modern power industrial system had been established, making remarkable contribution to the development of national economy and the improvement of people's living standard and basically meeting the demands of social and economic development on electricity.

The installed electricity-generating capacity grew rapidly. By the end of 2000, the

installed electricity-generating capacity amounted to 319.3GW, with the annual electricity-generating production of 1368.5TWh, and China enjoyed the second largest power system in the world. During the period between 1980 and 2000, the annual growth rate of the installed electricity-generating capacity and electricity-generating production was respectively 8.2% and 7.9%. The power elasticity efficacy calculated in electricity-generating production was 0.81.

The scope of power grids was steadily enlarged. Acceleration of power construction went side by side with the stepping up of the power grid construction. By the end of 2000, the transmission line of 500KW was 26837 km long, the transmission line of 330 KW was 8669 km long and the capacity of transformer of 220KW and above amounted to 41.489 million KWA. There formed power networks across the Northeast China, North China, East China, Middle China and the Northwest China as well as 6 independent power networks, covering all cities and the majority of rural areas in China. With Three Gorges Project to be completed and put into production, the power grids will be interlinked to form a national unified power network and the optimization allocation of resources along the whole country will enter a new phase.

Technology of Power and the level of management were obviously raised. China grasped the technology of design, manufacture, installation and operation of thermal power units of 300 thousand KW, 500 thousand KW and 600 thousand KW, the technology of installation and operation of nuclear power unit of millions KW as well as the construction technology of 180-meter-long dams of all types.

The management system of power sector developed in the direction of market economy step by step. China set up the target of management system of power sector, that is, “the separation of power plants from grids, bid for grid, and supervision by government”, and conducted experiments in some regions. Separation of government from enterprises in power sector was completed and power enterprises were generally run in accordance with “commercial operation and entrepreneurial management”. There was a transition from monopoly to partial competence in the power sector.

Power sector gradually developed in a sustained way. Because electricity generation in China was mainly fueled by coal, the environmental pollution caused in electricity generation became more and more serious. At present, the power sector achieves dust-removal and strengthens the implementation of desulphur and denitre.

2. Review of power policies

(1) Raise funds for developing electricity

In 1985, the State Council issued Provisional Regulations on Encouragement of Raising Funds for Developing Electricity and Adopting Multiple Prices. It broke the monopoly of the central government on electricity development, gave great incentive to the central government, the local governments, enterprises and foreign-invested companies to develop electricity, and thus facilitate the development of electricity. During more than two decades, a large number of power suppliers occurred, and electricity development, mainly dependant on social funds and foreign investment, was much promoted. Since the policy of raising funds for developing electricity was implemented, investment companies with core business of investment in electricity development have been successively set up in various

provinces (cities and autonomous regions) and major cities. At present, the installed electricity-generating capacity constructed through fundraising exceeds 50%. Therefore, various means of investment, including local investment, to develop electricity not only raise a lot of funds for the development of power sector but also break the monopoly of electricity construction in the system, making new contribution to the deepening of reform in the power sector.

The system of multiple prices of “New price for new electricity”, one price for one plants and one price for one unit, which was adopted in the implementation of the policy of raising funds for developing electricity, on a certain degree caused different treatment, and the set investment recovery period was short, so the electricity price increased rapidly. In addition, the chaos in management system caused by preferential policies given to some plants built by fundraising add difficulties to the reform of power system.

(2) Multiple prices

In 1985, the State Council wrote comments on Provisional Regulations on Encouragement of Raising Funds for Developing Electricity and Adopting Multiple Prices in order to alleviate power shortage and encourage various investors to develop electricity. Double track system of directive power price and guided power price changed the single accounting system from the pricing mechanism and on a certain degree reflected the marginal cost of power construction. In addition, as to directive electricity production, fuel fees and transport fees were added to the cost and the electricity price was raised correspondingly to change the hard-and-fast electricity price as well as to partly reflect the variability of electricity production cost.

Then the electricity price was allowed to fluctuate in accordance with the fluctuation of the fuel price and transport price. “Two Fen” was charged to establish power construction funds for local electricity development.

Electricity price reform has been a core link in the reform of power system. Before 2001, plants and grids were not separated, competitive power market did not formed and social influence of electricity price reform was large. Therefore, the current electricity price is chaotic and it is not uncommon that both competition and users’ burden are unfair and prices in a few of regions are rather high.

To tell the truth, electricity price reform was successful under circumstances at that time. However, lack of long-term plan, the price reform failed to be adjusted to the progress of market system and the development of power sector was restrained.

The target of “separation of plants from grids and bid for grids” was proposed in the new power system reform program. But it is a long way to hit the target.

(3) Utilization of foreign investment to develop electricity

Summing up successful experiences and existing problems, The Ministry of Power Industry issued Provisional Regulations on Utilization of Foreign Investment to Develop Electricity in March 1994 in order to promote and accelerate the pace of the utilization of foreign investment to develop electricity.

Utilization of foreign investment to develop electricity is both an important measure to step up the reform and development of power system and a work with strong policy application. We should both maintain a positive attitude and avoid acting blindly.

This policy stipulates the basic investment methods, investment fields, investment

operation forms, time limit of jointly invested power projects and cooperated power projects.

This policy puts into order the chaos caused by introduction of foreign investment in electricity development at that time. But with constraint of many factors, there are aftereffects left in the reform of power system by rash introduction of investment, some of preferential policies hardly carried out and the rather long operation term of some of jointly-invested or cooperated projects.

This policy changes the investment custom in the power system, increases the resources of funds for power construction and on some degree raises the technological level and equipment level in power sector of China.

Utilization forms of foreign investment are diversified. Large-sized power projects such as Shenzhen Shajiao B Power Plant, Xiao Langdi Hydropower Plant, Ertan Hydropower Plant, Shaanxi-Jingbian Gas Power Plant were successively completed. Shandong Zhonghua Power Co., Ltd. was established.

Generally speaking, this policy achieves success.

(4) Policy of small thermal power

In 1985, Commission of State Economy, State Bureau of Commodity Price, The Ministry of Water Resources and Electric Power jointly issued Regulations on Small Thermal Power (NO371). In Oct. 1986, the State Development and Planning Commission, the Ministry of Water Resources and Electric Power jointly issued Provisional Regulations on Small Thermal Power Development. In accordance with the two regulations, local small thermal power plants, which provide electricity to local industrial and agricultural production and daily life, are complementary to power grids and an integrated part of power sector; the policy should give support to the development of small thermal power with relevant preferential policies given to facilitate grid listing and in terms of electricity price; as to linked small thermal power, the price is set on the basis of medium or higher electricity generating cost, to which are added electricity generating tax and reasonable profit; as to unlinked small thermal power, the price is set in line with the principle of reasonable profit.

From the angle of implementation results, this policy played an active role in the development of small thermal power and alleviation of power supply. But because the prescribed principles were not abided by, there was a tendency that the growth of steaming-style small thermal power went out of control. It brought a lot of difficulties in the efforts at restructure of power sector, improvement of the power sector, reduction of environmental pollution and implementation of policies to close small thermal power plants.

To tell the truth, the policy of developing small thermal power didn’t achieve success.

In March 1989, the Ministry of Energy, the State Development and Planning Commission jointly issued Notice on Constraint of Steaming-Style Small Thermal Power Construction. In 1999, the State Council made comments on Notice on Closing Small Thermal Power issued by the State Commission of Economy and Trade, marking that the state started to close small thermal power. By the end of 2001, the total capacity of closed small thermal power was 12.26GW, 40.9% of the target of 30GW.

Due to the closing of small thermal power, resources are saved, environment is

protected, and the overall quality and efficiency of the power sector are improved. But owing to the protection of regional interests, the supply shortage of electricity, and auxiliary measures not put into place, more than half of the small thermal power plants still haven't been closed

(5) Reform of power industrial system

Since 1980, electric power administrations in central government has undergone four changes。For the first time, the former Ministry of Power Industry was set up. For the second time, the Ministry of Water Conservancy and Power was set up. For the third time, the Ministry of Energy was set up. For the fourth time, the Ministry of Power Industry was set up.

In terms of reform of administrative system in the power sector, the principle to the reform of power system was proposed that "separation of government from enterprises, province as entity, power grids to be united, unified allocation and raising funds for developing electricity", and the target was set up that "reshuffle according to corporate mechanism, commercial operation, and legal management". After the establishment of National Power Corporation in Jan. 1997, the target of reform was to separate government from enterprises, break monopoly, introduce competition, optimize allocation of resources and establish the standard and orderly power market when the transition of corporate system was finished. In August 1998, National Power Corporation put forward a four-stage reform program, the main contents of which were "separation of government from enterprises, province as entity" and "separation of plants from grids, bid for grids listing". During the first stage, from the establishment of National Power Corporation to the cancellation of the Ministry of Power Industry in 1998, The Ministry of Power Industry and National Power Corporation operated in a double-track system and succeeded in the smooth system transition and functions takeover. During the second stage frm1998 to 2000, the major tasks were to promote the entity process of National Power Corporation, to achieve the target of "separation of government from enterprises, province as entity, reshuffle according to corporate mechanism", to regulate power administrative system in rural areas, to strengthen power grid construction in urban cities, to conduct experiments of separation of plants from grids and bid for grid listing and to strive to set up modern entrepreneurial system in the state power corporation system by 2000. During the third stage from 2001 to 2010, National Power Corporation will generally complete the power network across regions to form the national power network and to achieve unified allocation and the separation of plants from grids. Different power suppliers, as equal and independent competitor, are going to bid for grids listing according to the competition rules of power market. In this way, the allocation of resources in the whole country can be optimized. During the fourth stage beginning in 2010, the three links, electricity generation, transmission and allocation, will be separated, standard and orderly power market will be set up and competition will be introduced to a larger extent. On Dec 24, 1998, the State Council wrote comments on Advice on Deepening the Reform of Power Industrial System by the State Commission of Economy and Trade. Six provinces will conduct experiments on "separation of plants from grids, bid for grids listing".

In Oct. 2000, General Office of the State Council issued the paper No 69, stipulating that State Development and Planning Commission is responsible for the reform of power

industrial system. State Development and Planning Commission, State Commission of Economy and Trade and State Power Corporation constitute a coordinated leading group. Then, the reform target of "separation of plants from grids, bid for grids listing" was established.

From implementation results, the progress is rather slow and there is still a long way to go.

(6) Electricity law

Electricity law was passed by the 17th session of the Standing Committee of the 8th National People's Congress on Dec. 28, 1995 and was implemented from April 1, 1996.

Electricity law comprises ten chapters, including general rules, power construction, power production, grids management, power supply and consumption, electricity price and electricity fees, rural power construction and consumption, supervision and examination, liabilities and supplementary article.

Electricity Law had been prepared and drafted for a long time, so some articles didn't apply to the external environment when Electricity Law was promulgated. In addition, after the initiation of Electricity Law, the management system of power sector has gone great changes. For example, the pricing principles and implementation methods haven't been carried out till now, and there is some discrepancy with the target of "bid for grid listing" proposed in the reform program of power system.

Therefore, the revision and improvement of Electricity Law is an urgent job.

(7) Policies and measures of electricity saving

On March 30, 1987, the Circular of the State Council of Approving the Notice on Regulations of Strengthening Electricity Saving of the Commission of State Economy, the State Development and Planning Commission, NO. [1987] 25. The State Commission of Economy and Trade and the State Development and Planning Commission jointly issued Regulations of Saving Electricity consumption, NO. [2000] 1256

It comprises electricity consumption management, power demands side management (DSM), electricity saving technological advancement, rewards and punishments.

From implementation results, the load regulation and electricity saving were on somewhat extent promoted. DSM was experimented and promoted in many provinces, playing an active role in promoting electricity saving. But under the influence of many factors such as market economy and electricity price, the implementation needs to be strengthened.

Generally speaking, this policy achieves success.

(8) Electricity transmission from west to east

West-to-east electricity transmission is the major policy the state made when the grand strategy of developing the west region is implemented, and is an important measure to transform the advantage of rich resources into the economic advantage and to promote the development of both the east region and the west region on the basis of socialist market economy. West-to-east electricity transmission, a key project in the grand strategy of developing the west region, means to develop the electric resources in the west region such as Guizhou, Yunnan, Guangxi, Sichuan, Inner Mongolia, Shanxi and Shaanxi and transmit the electric power to Guangdong, Shanhai, Jiangsu, Zhejiang, Beijing, Tianjing and Tangshan where the electric power supply is tight.

With the implementation of west-to-east electricity transmission, on the one hand, the east region can be provided with clean, qualified, reliable and cheap power so that its economic and social development is accelerated, on the other hand, the west region can give full play to its unique natural resources to acquire the start-up fund that the development of the west region is badly needed, to increase employment, tax revenue and revenue, to improve infrastructure facilities and investment environment, and in turn, its economic development is much promoted.

The development of electricity in the west region and the electricity transmission from west to east can give an impetus to the development of relevant industries and stimulate the domestic demand. The development of rich resources of water, coal and electricity in the west region can give an impetus to the development of relevant industries, especially the prospecting industries with high-energy consumption, promote industries moving from east to west, accelerate the transition of the advantage of regional resources to the economic advantage, narrow the gap between east and west, promote the prosperity and stability in the west region, especially the border areas, and bring the border areas a long period of peace and order. In addition, with clean, qualified, reliable and cheap power transmitted to the east region, the development of the east region is promoted and local environment is improved.

(9) Policy of nuclear power development

Qinshan Nuclear Power Station is China's first indigenously designed, constructed, tested and operated nuclear power plant. It began construction on March 20, 1985, underwent first electricity generation on Dec. 15, 1991, commenced commercial operation in April 1994 and was certified by the Chinese government in July 1995. With Qinshan Nuclear Power Station constructed and put into production, Chinese history of no nuclear power came to an end. It is a brilliant model of China’s peaceful utilization of nuclear power. China is the 7th country that can indigenously design and construct the nuclear power station after the United States, the United Kingdom, France, former Soviet Union, Canada and Sweden.

The construction of Qinshan Nuclear Power Station set a precedent for the development of nuclear power industry in China. Ⅱ Phase of Qinshan Nuclear Power Station, Daya Bay Nuclear Power Station, Ling’ao Nuclear Power Station and Ⅲ Phase of Qinshan Nuclear Power Station were completely or partially put into production in succession. And Lian Yungang Nuclear Power Station is under construction. The construction and operation of nuclear power projects makes contribution to the optimization of energy structure and power structure as well as the technological reserve of nuclear power.

We made a few detours in the development of nuclear power in China, such as the choice of technological lines, the process of nationalization and unawareness of the importance of the nuclear power when the contradiction between electricity supplies and demands was comparatively relaxed.

(10) Construction of hydropower bases and Three Gorges Dam Project

“The Plan of Ten Hydropower Bases” was first put forward in 1978. “The Plan of Twelve Hydropower Bases in China” was made in 1989. It is of great significance to accelerate the development of twelve hydropower bases, which enjoy the richest water

resources in China. The total installed capacity of twelve hydropower bases amounted to 215 million kW, 34.5915 million Kw of which had been constructed by 2000, the annual electricity-generating production amounted to 1020 billion kWh, and the installed capacity under construction is 25.205 million Kw.

The plan, construction and operation of hydropower bases reflected the energy policy of giving the top priority to the hydropower development and concentrating the energy on major issues and played an economic role in optimizing the structure of China's power resources, and developing the energy resources and economy in the west region. But because the capital and policies were not in place, the development process didn't meet the expectation.

On April 3, 1992, the Fifth session of the 7th National People's Congress passed the Resolution of the Construction of Three Gorges Project and decided to bring the construction of Three Gorges Project into Ten-Year Plan of National Social and Economic Development. On July 26, 1993, the 2nd session of Three Gorges Project Construction Committee of the State Council examined and approved the tentative design report (key project), which marked the preparatory stage of formal construction of the Three Gorges Project.

The key project of Three Gorges Project was officially initiated on Dec. 14, 1994. The total installed capacity of 26 units amounted to 18.2 million kW, with 700 thousand kW per unit. The annual average electricity production is 84.7 billion kWh. The scope of electricity supply covers the Middle China, the East China and Chongqing. The first units of Three Gorges Power Station generated electricity in 2003 and the Station will be completed and put into production in 2009.

Three Gorges Project is the only project in the energy sector that was approved by the National People's Congress. It reflects the democracy in the decision making. Three Gorges Power Construction Funds raised by the state for the construction of the Three Gorges Project also conforms to the principle of assembling capital to deal with major issues.

(11) Construction and transformation of power grids in rural areas and urban cities

The major policy of acceleration of construction and transformation of power grids in rural areas and urban cities was made by the central government with the full awareness of the actual situation in China's power system, including weak grid framework, unreasonable and uncoordinated distribution, old, drawback and insecure technological equipment, lot of facilities with high energy consumption as well as large tear and wear on electric power, insufficient compensation capacity and unreasonable allocation, lack of voltage control measures, and too much voltage fluctuation. Construction and transformation of power grids in rural areas and urban cities was not only an important measure that the State Council adopted to stimulate the economic development and achieve the target of national economic growth but also an urgent task for the electricity corporations to open market and meet the demands of the society on electricity.

With the construction and transformation of power grids in rural areas and urban cities, the construction of power grids reached a higher level. This policy played an important role in the improvement of power infrastructure facilities, increase in the power supply capacity of the whole power grids, alleviation of power supply shortage, improvement of safe operation of power grids and improvement of electricity quality.

Through the efforts of several years, the set targets were generally achieved. This policy achieves success.

Table 3-1. Assessment Results of Power Policies

NO	Contents	Results	Brief reasons
System reform			
1.	In 1988, the State Council approved the Reform Program of Administrative System in Power Sector proposed by the Ministry of Energy.	Fairly good	The power sector undertook the reform in line with the principle of "separation of government from enterprises, province as entity, linked power grids, unified allocation and raising funds for developing electricity" and in conformity to the guideline of "acting according to local conditions and different power grids".
2.	The Notice on the Promulgation of the Implementation Measures of the Transition of Operating System in Power Enterprises by the Power Industrial Ministry, the State Commission of System Reform and the State Commission of Economy and Trade, NO. [1993] 360, Sep 25, 1993	Poor	In terms of implementation results, the operating system of electricity enterprises failed to be in place even after too much delay, and thus hardly adapted to the market economy.
3.	The General Office of the State Council circulated the Notice on the Advice of the System Reform in the Power Sector by the State Commission of Economy and Trade, NO. [1998] 146, Dec. 24, 1998	Poor	The principle of "province as the entity" and the target of four-stage reform were established. But the reform program that was initiated later generally changed the original design.
4.	The State Council circulated the Notice on Accelerating the Reform of Rural Power System and Strengthening the Rural Power Management by the State Commission of Economy and Trade, NO. [1999] 82, Feb. 5, 1999	Good	Attach great importance to rural electricity and play an active role in the improvement of electricity supply in the rural areas.

5.	Notice on Relevant Issues of Pilot Work of Bid for Grid Listing by the State Development and Planning Commission, NO. [2000] 409, April 11, 2000	Fairly good	Because power supply has become more and more tight since 2000, the progress of implementation was slow, and the results were not obvious.
6.	Notice on Relevant Issues of System Reform in the Power Sector by the General Office of the State Council, NO. [2000] 69, Oct. 17, 2000	Fairly good	Accelerate the administrative system reform in the Power Sector, break monopoly, introduce competition, "separate plants from grids and bid for grid listing"
Raise funds for developing electricity and electricity price			
7.	Establishment of Huaneng Group with the special coal-substitute-for-oil funds. As a comprehensive large-sized state-owned group centered on electric power, China Huaneng Group was established under the coal-substitute-for-oil industry policy and with the special funds. Huaneng Companies were successively established after 1985 and the State Council approved the formal establishment of China Huaneng Group in 1988 with China Huaneng Group company as its nuclear enterprise. China Huaneng Group was placed in the list of the first national pilot units of large-sized enterprises in 1991 and joined the newly established National Power Group in 1996. Presently, the Group is constituted by China Huaneng Group, as its core, nine member companies, hundreds of sub companies located in every corner of China, several branches and overseas affiliates.	Good	A new page of using foreign investment in the power sector; change of the single mode of developing electricity.
8.	Regulations of Small Thermal Power Price by the Commission of State Economy, the State Bureau of Commodity Price, the Ministry of Water Resources and Electric Power, NO. [1985] 371, May 30, 1985	Fairly good	Facilitate the development of the small thermal power, but have a negative impact on the reasonable utilization of resources and the environmental protection.

9.	Provisional Regulations on Encouragement of Raising Funds for Developing Electricity and Adopting Multiple Prices by the State Council, NO. [1985] 72, May 23, 1985	Fairly good	Change the single investment system of the past. But there were management chaos in the implementation.
10.	Notice on the Adoption of Multiple Prices by the Ministry of Water Resources and Electric Power, the Commission of State Economy and the State Bureau of Commodity Price, Nov. 28, 1987	Fairly good	Provide guidelines for the accession of social investors and foreign investors to power industry and provide principles to electricity price. But there were chaos in electricity price and many places raised electricity prices without permission.
11.	Notice on the Issue of Provisional Regulations of the Utilization of Foreign Investment of Electricity Development by the Ministry of Power Industry, March 30, 1994	Fairly good	Standardize the policy of using foreign investment to develop electricity.
12.	Notice on Continuing the Charge of Power Construction Funds During the Period of the 9th Five-Year Plan by the State Development and Planning Commission, March 28, 1996	Fairly good	Expand the capital channels of power construction and develop the power industry.
13.	The State Council circulated the Notice on Regulations of Stopping to Enforce the Electricity Ownership by the State Commission of Economy and Trade and the State Development and Planning Commission, NO. [1998] 32, Sep. 20, 1998	Fairly good	Stop the implementation of the electricity purchase right, control the nonproductive electricity consumption and raise the electricity price for the electricity over the quota.
14.	The resolution of the cancellation of the electricity subsidy by the State Development and Planning Commission, the State Commission of Economy and Trade, June 13, 2000	Poor	Lack of coordination in policies, the capital channels of low-voltage grids were not guaranteed.
Electricity saving and energy saving			
15.	Notice on the Regulations of Strengthening the work of electricity saving by the State Council circulated Commission of State Economy and the State Development and Planning Commission, March 3, 1987	Fairly good	Clarify the direction of electricity saving.

16.	Notice on the Regulations of Energy Saving in the Thermal Power Plants (on trial) by the Ministry of Energy, Feb. 5, 1991	Good	Promote energy saving in the power industry.
Protection of electricity facilities			
17.	Regulations of the Protection of Electricity Facilities, Sep. 15, 1987	Good	Raise the awareness of the protection of electricity facilities.
18.	Rules and regulations of implementation of the Protection of Electricity Facilities, Dec. 2, 1992	Good	
Small thermal power			
19.	The Provisional Regulations of the Development of Small Thermal Power by the State Development and Planning Commission and the Ministry of Water Resources and Electric Power, Oct. 1986	Poor	Electricity supply capacity was raised, but the environment was destroyed and the efficiency was decreased.
20.	The State Development and Planning Commission, the Ministry of Energy issued the Notice on Restraint of Steaming Small Thermal Power, NO [1989] 135, March, 1989	Fairly good	Proper motive and objectives of the reform, a certain results, restraint of the construction of the small thermal power plants in the areas covered by big power grids. But there were lack of corresponding and powerful coordinated measures and the implementation needed to be strengthened.
21.	Notice on Advice of Rectification of Small Thermal Power by the Ministry of Energy, NO. [1990] 538, June 14, 1990	Fairly good	
22.	The State Development and Planning Commission, the State Commission of Economy and Trade, the Bank of China, the Department of Mechanics and the Department of Power Industrial jointly issued the Notice on Restrict Control of Small Thermal Power, NO [1995] 2372, Dec. 1995	Fairly good	
23.	Notice on Provisional Regulations of the Construction of the Small Thermal Power Units by the Ministry of Power Industry, NO [1997] 431, Aug. 7, 1997	Fairly good	
24.	Reiteration on the Strict Review Procedures of Small Thermal Power Projects, NO [1998] 13, Jan. 12, 1998	Fairly good	
25.	Regulations of Closing down the Small Thermal Small Power of the State Power Corporation, NO. [1999] 337, June 30, 1999	Fairly good	
26.	The General Office of the State Council circulated the Notice on Advice of Closing down the Small Thermal Power, NO. [1999] 44, May 15, 1999	Fairly good	
27.	Notice on Advice of Closing down the Small Thermal Power of the State Commission of Economy and Trade, NO [1999] 883	Fairly good	
Regulation of Power Grids			

28.	Regulations of the Joint Operation with Air-powered Electricity Generation of the Department of Power Industry (on trial), July 26, 1994	Good	Support the electricity generation of the renewable energy.
29.	Notice on the Regulations of Strengthening the Management of Power Grid Regulation of the Department of Power Industry, March 20, 1997	Good	Facilitate the safe, stable, high efficient and quality operation of the power grids.
Power supply and consumption			
30.	Rules of Power Supply and Consumption, the State Council, NO. 196, was released on April 17, 1996 and implemented from Sep. 1, 1996	Good	Play an active role in protecting the legal rights and interests of electricity suppliers and consumers and maintaining the order of electricity supply and consumption.
31.	Three Gorges Project. On April 3, 1992, the 5th session of the 7th National People's Congress discussed and passed Resolution of Three Gorges Project Construction. On Dec. 14, 1994, Three Gorges project officially went into operation on the basis of early-phase preparation. The project was of three phases and scheduled to be completed in 17 years. The total installed capacity of Three Gorges Hydropower Plant was 18.2 million KW, with annual average generated electric power production of 84.68 billion kWh.	Not ready for assessment	
32.	As the first large-sized nuclear station for commercial use built with funds, equipment and technology introduced from foreign countries, Daya Bay Nuclear Power Station, with the total investment of $ 4 billion Yuan, was one of the largest joint ventures since the reform and opening up. The nuclear power station was equipped with two Water-Pressure Reactor units with the capacity of each unit of 984 MWe. On Aug. 7, 1987, the project officially went into operation. On Feb 1, 1994 and on May 6, 1994, the two units were put into commercial production in succession. The annual generated electric power production of Guangdong Daya Bay Nuclear Power Station exceeds 10 billion kWh, of which 70 percent is transmitted to Hongkong and 30 percent to Guangdong power grids.	Good	A new chapter of the use of international technology and peaceful use of nuclear power; model of using foreign investment in the power sector.

33.	Electricity Transmission from West to East. 1. North Avenue: electricity transmitted from the coal bases in western Inner Mongolia, Shanxi and Shaanxi and power plants located in Gongbo Gorge and La Xiwa in the upper reaches of the Yellow River to the load center of Beijing, Tianjing and Tangshan. 2. Middle Avenue: electricity transmitted from 22 hydropower stations that are to be built along the Yangtze River, through powerful and concentrated networks, to central China, east China, Fujian and Guangdong. 3. South Avenue: electricity transmitted mainly from Yunnan, Guizhou and Guangxi where hydropower is to be developed, and complementarily from Guizhou where thermo power is to be developed to load center of east areas such as Guangdong. The start of the construction of the power station in Wu River basin in Nov. 2000 was the prologue to East-to-West Transmission construction.	Not ready for assessment	
34.	Operating Rules of Power Supply, the Department of Power Industry, NO. 8, Oct. 8, 1996	Good	Strengthen the management of the electricity supply and protect the legal rights and interests of electricity suppliers and consumers.
35.	Notice on Circulating the Advice of Optimizing the Electricity Resources Allocation and Fairly Regulating the Power Grids, Aug 12, 1997	Fairly good	Facilitate the safe, stable, high efficient and quality operation of the power grids, promote the fair competition and the whole efficiency of the power enterprises, and reduce the burden of the electricity users.
36.	Notice on Circulating the Advice of Optimizing the Electricity Resources Allocation and Fairly Regulating the Power Grids The State Commission of Economy and Trade, NO. 1144, Nov. 25, 1999		
37.	Regulations of Stopping the Implementation of the Restraint of the Electricity Consumption, the State Council, NO. [1998] 32, Sep. 20, 1998	Good	Change the administrative means, make use of the market

38.	Notice on the Regulations of Stopping the Implementation of the Restraint of the Electricity Consumption by the Department of Power Industry, NO. [1998] 204, March 19, 1998	Good	to regulate the electricity market and alleviate the enterprises' burden of the electricity fees.
39.	Notice on Promotion of the Electricity Consumption by the Price Leverage of the State Development and Planning Commission and the State Commission of Economy and Trade, NO. [1999] 2189, Dec. 10, 1999	Good	Employ the economic levers to regulate the electricity consumption.
Transformation of the power grids in urban and rural areas			
40.	Construction and transformation of rural power grids. On July 8, 1998, State Development Planning Commission issued Notice of Acceleration of Construction and Transformation of Rural Power Grids (Electricity Planning Commission [1998] NO 73). In the efforts of the construction and transformation of rural power grids, priority should be given to the transformation of low-tension network (10 thousand volt and below) on the premise of unified planning and standards, and the development of networks of different voltage levels should be coordinated in order to ensure the economy, reliability and safety of rural power supply.	Good	During the three years' efforts, the first projects of construction and transformation of rural power grids covered more than 2400 counties by the end of 2001, enabling electric power accessible to 13.8 million people, making the rate of tear and wear of low-tension network generally decrease from 20%-30% to 12% below and the rural household electricity price decline by 0.13 Yuan/1 kWh on average. In more than three years, the volume of electricity consumption in rural areas increased at the speed of 10%, and even 20% in some parts of the areas, much higher than that of the whole country, giving impetus to the development of rural economy.
41.	Notice on Circulating the Guiding Advice on the Construction and Transformation of Power Grids of the State Power Corporation, NO. [1999] 54, Feb. 9, 1999	Fairly good	The infrastructure of power grids in urban and rural areas was obviously improved. But the large investment didn't achieve obvious increase in the electricity consumption.
42.	Notice on Circulating the Advice of the Acceleration of the Construction and Transformation of Power Grids, NO [1998] 418, Aug. 31, 1998	Fairly good	
Science and technology			

43.	The Resolution of Accelerating the technological Advancement, NO. [1994] 446, July 23, 1994	Good	Propose the strategy and objectives of the scientific and technological development, strengthen the macro-management of the scientific and technological work of electricity, give full play to the advisory role f the Electric Power Technique Committee.
44.	Notice on Circulating of the Technical Policy of the Power Industry and the Policy of Equipment in the Power Industry, NO. [1994] 562, Sep. 19, 1994	Fairly good	Propose the 15 technique directions such as actively develop the hydropower and develop the nuclear power techniques and make efforts to carry them out. But the actual results didn't meet the expectation.
45.	Notice on Circulating of the Ninth Five-Year Scientific and Technological Development Outline of the Power Industry, NO. [1996] 495, July. 30, 1996	Good	Realize the current technique level of the power industry, put forward the development focus and generally achieve the targets.
Rules and regulations			
46.	Chairman's Decree, Power Law of the PRC, Dec. 28, 1995	Fairly good	Provide legal guarantee to the development of the power industry. But it needs improvement to adapt to the external changes.
Others			
47.	Notice on the Promulgation of the Regulations of Comprehensive Utilization of Fly Ash of the Ministry of Energy, Feb. 2, 1991	Fairly good	Facilitate the reasonable utilization of the resources, and protect the environment.

48.	Regulations of the Development of the Thermal Power by the State Development and Planning Commission, the State Commission of Economy and Trade, the Ministry of Construction, the State Administration of Environmental Protection, Aug. 22, 2000	Good	Explicitly put forward the principle of joint production of heat and electricity, prevent the development of small thermal power at the excuse of the development of joint production of heat and electricity, and play an active role in the improvement of the efficiency of joint production of heat and electricity.

Ⅳ Assessment of Oil Policies

1. Review of administrative system and relevant policies in the oil sector

(1) Administrative system in the oil sector

Since the reform and opening up and with the deepening reform of economic system, the administrative system has been adjusted in accordance with the requirements for division of labor based on specialization and for market economy. The State Energy Commission, in charge of the oil department, the coal department and the power department, was established in 1980. Since 1982 when The State Energy Commission was removed, the three departments were directly under the State Council.

China National Offshore Oil Corporation, established in the oil department on Feb 15, 1982, was responsible for the foreign cooperation of China offshore oil. On July 12, 1983, the chemical industry of refinery was separated from the oil department, and became China Petrochemical Corporation. In Sep. 1988, the oil department, the coal department and the electric power department were removed and the Ministry of Energy was established. The former oil department was reorganized to China National Petroleum Corporation and China National Offshore Oil Corporation was separated from the former oil department. Like China Coal Corporation and China Power Corporation, China National Petroleum Corporation, China Petrochemical Corporation and China National Offshore Oil Corporation were of ministerial level and vice ministerial level. They exercised considerable government administrative functions and played the role of the state corporation. Therefore, the Ministry of Energy hardly exercised the administrative function in the industry and was cancelled in March 1992.

At that time, China oil industry formed the following pattern: China National Petroleum Corporation was in charge of the exploration, development and pipeline transportation of land oil and gas; China National Offshore Oil Corporation was in charge

of exploration and development of offshore oil and the foreign corporation; China Petrochemical Corporation was in charge of oil refining and marketing; China National Chemicals Import & Export Corporation under Commission of Foreign Economy and Trade, was in charge of the import and export of oil and refined oil. Thus, there formed the administration model of the separation of land oil from offshore oil, of upstream operation from downstream operation, and domestic trade from foreign trade in China oil industry. In 1996, the State Council formally commented and approved that the Ministry of Geological Mineral initiated Xinxing Oil Stock Co., Ltd. who was empowered the right of exploration and development of land oil and offshore oil, the right of foreign trade and the right of foreign corporation. Thus, it became the only oil corporation that was engaged in exploration and development of both land oil and offshore oil, both domestic trade and foreign trade as well as independent business of foreign cooperation. However, Regulation of Foreign Cooperation of Land Oil and Regulation of Offshore Oil were not correspondingly amended, and the scope of business of Xinxing Oil Company was much smaller than that of other oil companies. Therefore, the establishment of Xinxing didn't change the pattern of the domestic oil industry and didn't have impact on the administration system of China oil industry.

The main features of government administration of oil industry are as follows: first, transit from administrative mode of planned economy to market economy, gradually reduce directive plans, reduce direct interference in the entrepreneurial production and operation activities, narrow down the examination scope of investment projects. Besides, the price of some of essential factors of production began to be regulated by the market, the price of goods inside the plan and that outside the plan were unified, and the allocation of products was partly regulated by the market; second, reform the administration system of which government and enterprises were not separate. The investment system, production and operation mode began to undergo great changes. China National Offshore Oil Corporation drew on the experiences of foreign oil companies in administration approaches during the course of foreign cooperation; third, in the reform, the efforts at separation of government from enterprises by setting up the Ministry of Energy and a few of corporations in energy industry didn't hit the set target. With the removal of Commission of Energy, the government administration of oil industry was decentralized and weakened. At the same time, because the reform of economic system hadn't been put into place, the reform of the administrative corporations didn't continue, as a result, the three oil corporations were generally administrative corporations that served as state corporation and exercised a part of functions of the government. Therefore, the target of detachment of government from enterprises was not attained. The characteristic of the former phase was that "government served as enterprise", while that of this phase was that "enterprises still exercised the functions of the government".

On March 6, 1998, the government functions of the Ministry of Petrochemical, China National Petroleum Corporation and China Petrochemical Corporation were amalgamated into Nation Petrochemical Administration under Commission of Foreign Economy and Trade. On the basis of the former China National Petroleum Corporation and the former China Petrochemical Corporation, China National Petroleum Group (CNPC) and China Petrochemical Group were reorganized in line with the principle of separation of

government from enterprises, regional structures, integration of upstream and downstream operation, focuses and overlaps of businesses, maintenance of advantages and competence in order. The reshuffled corporations, no longer exercising the government functions, became the legal entity "of independent operation, responsible for their own profits and losses, self-development and self-restraint."

The restructure in 1998 was targeted at the market economy mechanism with the main aim of separation of government from enterprises. After restructure, the government no longer directly interfered in the enterprises' production and operation, and the two corporations no longer exercised the government functions. The reshuffled corporations were transformed from the industrial corporations to entrepreneurial corporations with integrated upstream and downstream operation and from state corporations to commercial corporations. Then, reshuffled corporations and China National Offshore Oil Corporation continued to be restructured and reorganized inside, and the core business was listed overseas.

On April 4, 2000 and April 7, 2000, PetroChina Co., Ltd., CNPC's subsidiary, was respectively listed in New York and Hong Kong. BP bought 3.5 billion H shares of CNPC, 20 percent of the existing total number of H shares. In addition, Cheung Kong (Holdings) Limited, Hutchison Whampoa Limited, Chow Tai Fook Jewellery Co., Ltd. and Sun Hung Kai Properties Ltd. became the shareholder of CNPC.

On Oct. 10, 2000 and on Oct. 19, 2000, Sinopec Co., Ltd., China Petrochemical Corporation's subsidiary, was respectively listed in New York, London and Hong Kong. The Company's exiting total number of shares is 18.0385 billion, of which 55.06% is held by the state through Sinopec Group, 22.713% by domestic banks and assets management companies (AMCs), 21.21% by foreign shareholders.

With the reshuffle of two corporations in1998, the government administration role in China's industry administration system was initially transformed from planned economy to market economy. But the reform of the industry administration system has not accomplished yet. The oil corporations have generally finished the transformation of role from government to enterprise and stepped up the progress of market economy and internationalization. The present task is that the government should play a better administrative role and the emerging problem of the weakening administrative role of the government in the oil and gas industry must be virtually settled.

(2) Main problems of the administration system in China's oil sector and of relevant policies

1) Distribution of government administration functions in oil industry

The State Development Planning Commission recently set up Energy Administration responsible for China energy affairs. However, government administration functions were still decentralized in various overall economic administrations and executive and law enforcement agencies.

① The State Development Planning Commission

Before 1998, The State Development Planning Commission and the former Ministry of Geology Mineral took over the main administrative functions of Energy Ministry in oil industry after the removal of Energy Commission. After 1998, The State Development Planning Commission, as the main macro-economic regulation department, has main

administrative functions in the oil industry as follows: first, overall balance, establishing the aggregate balance plan of oil, natural gas and important refined oil; second, development plan, providing guidance for the oil industry to make medium- and long-term plan; third, industry development, establishing major projects and distribution for the oil industry development, striking an overall balance of energy development plan as well as examining and approving the areas and development programs of foreign cooperation in oil resources; fourth, capital construction, arranging, examining and approving investment plans of major construction projects; fifth, price control, setting and promulgating the price and policies of crude oil, natural gas, pipeline transportation and refined oil as well as organizing and carrying out the price supervision and inspection; sixth, high-tech industry development, proposing investment policies and plans for major projects in high-tech industry.

② Ministry of Land Resources

The Ministry of Land Resources is responsible for overall management of planning, management, protection and reasonable utilization of natural resources such as land resources, mineral resources and marine resources. Its main administrative functions in the oil industry cover: first, work out relevant rules and regulations and technique standards. The Law and Policy Department mainly exerts this function; second, in accordance with law, manage the review, approval and certification and the transfer of the certification of the oil exploration right and the mining right (including imposing fees on the mineral right); exert management of the geological exploration industry, examine the qualification of the geological exploration institutions and manage the geological exploration achievements; manage the charge and use of mineral resources compensation fees; review the qualification of institutions that are engaged in the appraisal of the mine exploration right and the mine right and confirm the appraisal results. The division of Geological Exploration exerts these functions; third, assume the tasks of oil reserves management and geological information collection and exchanges. Department of Mineral Reserves mainly exerts this function, and Oil and Gas Committee under China Petrochemical Corporation undertakes specific works.

③ General Administration of Quality Supervision, Inspection and Quarantine

As was called The State Bureau of Quality and Technical Supervision before 2001, General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China, now directly under the State Council, is responsible for metrology, quality supervision, inspection, quarantine as well as law enforcement and supervision. Its main administrative functions in the oil industry cover: management and organization of the establishment of national standards, coordination and guidance to industry standards, supervision of the implementation of those standards, administration of the work of production license for industrial products, uniform management of metrological work, uniform management and supervision of certification as well as organization and coordination of industrial and professional quality and technique supervision.

④ The State Environmental Protection Administration

The State Environmental Protection Administration, directly under the State Council, is responsible for environmental protection. Its main administrative functions in the oil industry cover: establishment, enforcement and supervision of environmental protection rules and regulations as well as examination and approval of reports on environmental influences of the development and construction.

⑤ The State Administration of Taxation

The State Administration of Taxation, directly under the State Council, is responsible for taxation. Besides general items of taxation, the State Administration of Taxation is responsible for levying and managing the resource tax concerning oil and gas resources, mine usage fees and tax in kind for foreign cooperation of oil development (value added tax of 5%). Among them, resource tax is charged by Local Taxation Department, mine usage tax and tax in kind for foreign cooperation of oil development (value added tax of 5%) are charged by International Taxation Department (Offshore Oil Taxation Administration).

⑥ Ministry of Construction

The Ministry of Construction is responsible for administration of construction. Its main administrative functions in the oil industry cover: flexibility study of construction projects, administration of economic appraisal approaches, economic parameters, construction standards, projects quota, construction land index and cost of construction, oil exploration and design, construction, construction supervision as well as examination and approval of qualifications of advisory business.

2) Main shortcomings of government administration system

① General weakening, decentralization and overlap of administrative functions

Oil industry is an important energy department in a country. Almost all of oil producing countries has to set up a special organization to deal with relevant affairs. The developed countries do so and the developing countries are no exception. As a big oil producing and consuming country in the world, China set up Commission of Energy when state oil corporations existed. However, when state oil corporations were successively reshuffled and when energy policies, oil strategies and market supervision and control were calling the government to strengthen its administrative functions and adjust the management mode, the administrative functions of government were virtually weakened.

First, administrations are not unified and clearly defined, so their functions are too decentralized. Functions of different administrations are overlapped and different administrations take charge of the same work, as a result, it is in all likelihood that there is lack of thorough research and coordination in major policies and strategies. In recent years, oil issues are at the center of our attention. However, it is insufficiently researched and studied as to how to establish sensitive and rapid reaction system and effective regulation system at the governmental level. When Chinese government is making great efforts to streamline administrative structure and retrench management staff, the decentralization of administrative functions will not only cause the waste of already limited management resources but also increase the workload of coordination between administrations. When an oil field corporation is granted the right of mining, the development of oil field needs a series of professional works concerning supervision and control. For example, the oil field corporation may explore and develop the oil vigorously due to high price of crude oil and let go the associated oil in order to pursue high profit. In this case, there are both a waste of state resources and atmospheric pollution. Who is going to take charge? The Ministry of Geology Mineral or the Ministry of Environmental Protection. And so on and so forth, there is frequent recurrence of similar cases.

Second, administration is rather weak in degrees. It is reported that there are less than 50 professionals in different administrations in charge of oil industrial administration. In

aspect of personnel allocation, there is no independent petroleum (petrochemical) division inside various Ministries and Commissions, instead, oil industry, chemical industry and coal industry are combined into one division with several pros inside. Professional administrators are neither concentrated nor systematic. Because of insufficient staff and heavy workload, it is not uncommon that one person assumes the responsibilities of several persons.

Third, because of the specialization and professionalism of the oil and gas industry, many specific supervision and control works have high requirements on professional techniques. Especially the supervision and control of projects, environmental protection, quality and safety in the oil industry is so specialized that it is impossible for the ministry, who is mainly responsible for policy making and overall administration of various industries, to be competent in every job. At present, works of policy research, supervision and implementation are assumed by or empowered to the big oil corporations. For example, government functions in foreign cooperation projects of land oil exploration and development and foreign cooperation projects of offshore oil exploration and development, the safety supervision and inspection in offshore oil operation, preliminary examination of reports on environmental influence of construction projects, administration of qualification certification of oil and gas construction and operation staff, centralized management of industry standards by specialized departments, product quality supervision and spot-check in oil , gas and petrochemical industry. In some ways, the domestic oil corporations not only enforce but also make and supervise oil policies and strategies. This is one of reasons why foreign oil companies feel unequal.

② functions of policy making and supervision undetached

Over a long haul, China has basically adopted the management method of combining policy making and policy implementation and supervision. The government is responsible for both policymaking and supervision, so there is lack of check and balance system. Due to unclearly defining post, limited work staff and insufficient professional techniques, it is difficult to deal well with two aspects of the job. Because of combination of policymaking and supervision, government institutions are bogged down in the complicated works of coordination and arbitration, and as a result, it is impossible for them to concentrate in the research of major policies and strategies in the industry. Owing to the contradiction between the complication of supervision works and limitation of government administrative resources, government administrations fail to put sufficient energy into supervision and administration works, but have no more choice than adopt the method of central rectification to deal with daily administrative works. For example, in some regions, oil resources are randomly and excessively explored and developed illegally, oil refining with local methods cannot be put an end with repeated banning order, and the production and circulation order is chaotic. To solve these problems, daily and routine administration is required from examination and approval of qualification certification to supervision and control of production and operation. Lacks of daily, routine and procedural supervision and control, overall economic administrations have to conduct central rectification activities many times in order to maintain order. With large number of materials and manpower pooled, certain results are attained for a while, but resurgence of similar cases is not uncommon.

③ lack of regular and transparent laws and rules in government administration

In past decades, departments are overlapping, responsibilities of government and enterprises are not separated, departments are responsible for law making and there is confusing multiple leadership. In government structure reform of 1998, professional departments were removed or weakened, comprehensive departments were strengthened, and institutions were drastically streamlined, which was splendid achievement in China administration reform. However, lack of unified policy coordination, the construction of legal system in oil industry is lagged behind and there are no complete and transparent rules and regulations. At present, the government administrates by means of examination and approval or administrative paper and there is usually no transparent mechanism. Administrative paper is of clear aim and is effective for a given period of time. In case that situation or understanding of the same problem undertakes some changes, another paper is issued for adjustment or accommodation, which results in instability. And there is likelihood that different departments issue different paper from a different angle. With accelerating progress of market economy, it is a crying need for industrial standards, supervision system improvement, supervision and administration pursuant to law and under supervision of government and the public as well as transparent practice.

2 Analysis of main policies in oil-gas industry

(1) Circulation system of crude oil and refined oil

In dealing with such problems as decentralized oil resources, operation by too many bosses, price out of control, chaotic market, exorbitant profits sought by lawbreaking speculators, corruption and degeneration, the State Council wrote comments on the Notice of Advice on the Reform of the Circulation System of Crude Oil and Refined oil by the Commission for National Planning, the Commission for National Economy and Trade, [1994] NO 21, April 5, 1994 in order to curb the acts detrimental to the interests of people and the nation as well as harmful to the stability of the domestic oil market. The Notice required:

1) Strike an overall balance between aggregate demand and supply.

An overall balance between aggregate demand and supply of crude oil and refined oil and successful allocation of total resources are prerequisite to the establishment of proper circulation order. In order to provide guidance to the production, import, export and distribution of crude oil and refined oil, the Commission for National Planning must make scientific prediction, widely consult departments and local areas concerned and strike an overall balance between the aggregate demands and aggregate supply of crude oil and refined oil when making annual plans and medium-and long-term plans.

The import of crude oil and refined oil must be brought to the national planned quota administration. Quota on imports must be reviewed and issued by the Commission for National Planning. Unified tax policy is exercised in special zones, border trade and foreign-invested enterprises on import crude oil and refined oil. The refined oil processed from crude oil imported by foreign-invested oil enterprises should be put into overall balance between aggregate supply and demand and under the state macro-management, and be priced by the state.

2) Rationally allocate the resources of processed crude oil

In accordance with the crude oil target issued by the Commission for National Planning, the oil company proposes specific allocation scheme for each refinery and is responsible for the implementation. The oil fields and local governments should support each other and pursue common development. But the oil fields cannot directly provide crude oil to local areas. Refineries no longer receive the domestic process crude oil. The import crude oil quota shall be managed by the Commission for National Planning and issued in groups after consultation with the Commission for National Economy and Trade and the Commission of Foreign Economy and Trade. The domestic crude oil for processing purpose is allocated in accordance with the unified national allocation plan.

3). Rationally allocate the resources of refined oil

The state provide unified guidance to the allocation of the total resources of refined oil, including those produced by all domestic refineries (the refineries subordinate to China Petroleum Company and Petroleum and Natural Gas Company), mainly petroleum oil, diesel, aircraft kerosene, lamp oil and fuel oil, import refined oil and the part of refined oil produced by foreign-invested enterprises that is sold at home. The Commission for National planning is responsible for the unified management of the quota on import refined oil.

E. Both crude oil and refined oil are priced by the state

The principle guiding the crude oil and refined oil circulation system reform is that the market price of refined oil shall be stabilized and the retail price shall not be higher than the current retail price after the initiation of the oil price reform program in order to ensure the stability of the refined oil market.

F. Rationalize sales channels and reduce circulation links

In accordance with the distribution plan made by the Commission for National Planning, under the guidance of the Commission of National Economy and Trade, the oil company is responsible for regional balance and allocation of refined oil and adjusting varieties as well as surpluses and deficiencies in line with the principle of unified policies, price, allocation and quality standard.

Existing institutions dealing in refined oil must be strictly wound up. The operation qualifications of those institutions shall be brought into sales channels by oil companies of province, autonomous region and municipality directly under the General Government as well as the plan-listed oil companies after advice concerned is given by all-level oil companies, qualifications are submitted to and approved by the corresponding-level Commission of Economy and Trade (the Commission for National Planning) and registered in local Administration of Industry and Commerce.

Great efforts should be made to check up on gas stations and retail networks of refined oil and to exercise commission agency system. Government of all levels should improve the planning and management of the construction of gas stations and retail networks. The newly built gas stations and retail networks should conform to standards and requirements, being consulted by local oil companies as well as being submitted to and approved by departments concerned. Without being approved by the state, any foreign enterprises are not allowed to engage in the wholesale and retail of refined oil.

(2) Price reform of crude oil and refined oil

Price system reform of crude oil and refined oil has been conducted since June 1998 in

efforts to put an end to the declining efficacy of oil sector and, as a result, the price of domestic crude oil and refined oil has initially got integrated into international market. The Notice of the Issue of the Reform Program of Crude Oil Price and Refined oil Price (the Commission of National Planning [1998] NO 52, June 3, 1998) put forward:

1) Target and principles of the price system reform of crude oil and refined oil

The target of oil price reform is, in accordance with the needs of socialist market economy, to establish the market-oriented price system of crude oil and refined oil under government's control and corresponding to the changing oil prices in the international market.

The follows are four principles of the reform. First, the reform should help protect the domestic oil resources and give impetus to the development of the oil sector. Second, the reform should be conducive to the technological advancement of the oil processing industry, the improvement of the management level, the cost decrease and the adoption of the intensive management. Third, the reform should be of benefit to the establishment of a unified, open, competent and orderly oil circulation system. Fourth, the reform should relatively stabilize the market price of oil after taking into consideration the bearing capacity in all aspects of the society.

2) Price of domestic land crude oil

Buying and selling prices of crude oil between two groups are set through consultation. When consultation produces no result, two groups concerned should submit the issue to the National Development and Planning Commission for coordination and ruling. The two groups autonomously set buying and selling prices of crude oil between the oil field and refineries inside two groups.

The principle of consultation between buyers and sellers is that the freight of domestic land crude oil transported to refineries should generally correspond to that of import crude oil. Under usual circumstances, in order to ensure that refineries give priority to domestic crude oil, the freight of domestic land crude oil transported to refineries should be slightly lower than that of import crude oil.

The settlement price between buyers and sellers (tax not added) is composed of two parts: the criterion price and the agio. The criterion price is decided by the State Development Planning Commission per month based on the F.O.B price of oil that is of similar quality. The National Development and Planning Commission set the criterion price of crude oil, adding F.O.B. of crude oil of similar quality in international market and duty together or adding average price of trade days in Singapore market and duty together.

The agio is set through consultation between buyer and seller according to incidental transport expenses of crude oil, quality price differences between domestic oil and foreign oil and market supplies and demands.

3) Price of gasoline and diesel

The retail price of gasoline and diesel is transited from government fixed price to government-guided price. The National Development and Planning Commission will set and announce the middle prices of gasoline and diesel for localities. And PetroChina Company Limited and SinoPec Company Limited will decide the concrete retail price in a range of 5% upper or below the middle retail price.

There is no middle price set for nonstandard goods. The specific retail prices of

nonstandard goods are established and issued by two groups according to the prices of standard goods and the quality ratio of gasoline and diesel prescribed by the state.

The principle of setting the middle prices of gasoline and diesel is that, based on the tax payment cost of gasoline and diesel oil import from the international market, with transport fees and difference ratio between the wholesale price and retail price added.

PetroChina Company Limited and SinoPec Company Limited are responsible for organizing the unified allocation of the gasoline and diesel to local retail units. The unified prices are exercised in the urban and rural areas (including the wholesale price to the users). The principle of one price for one province is exercised. In the same sales zone, PetroChina Company Limited and SinoPec Company Limited can exercise different prices in the prescribed fluctuation range and the same Corporation must adopt the unified price. The filling stations that don't belong to PetroChina Company Limited and SinoPec Company Limited, including foreign-invested retail filling stations in China, must sell on the commission base the refined oil according to the price set by the corporation. The oil corporation must bear joint liabilities for the illegal practice made by its commissioned filling stations.

PetroChina Company Limited and SinoPec Company Limited will decide the producer price, wholesale price, difference ratio between wholesale price and retail price, and submit those prices to the Development and Planning Commission.

(3) Principles of Pricing Refined oil

The circular of the State Development Planning Commission on the principles of pricing refined oil (NO.〔1998〕53, June 4th, 1998) stipulates that the producer prices of liquefied petroleum gas, kerosene for lamp use only, chemical light oil and heavy oil which aren't used for chemical fertilizer will be fixed by PetroChina Company Limited and SinoPec Company Limited in accordance with the following principles. The producer prices of the above four types of oil should maintain a rational price ratio with that of gasoline.

We will adjust the producer price of liquefied petroleum for civil use, taking consumers' bearing capacity into full consideration. And we will achieve a rational price ratio with the price of gasoline in 3 years in a step-by-step manner.

In accordance with the stipulations of the document, PetroChina Company Limited and SinoPec Company Limited should effectively strengthen the planning and management of refined oil resources, in order to ensure the unified distribution of gasoline and diesel oil, and the unified price in urban and rural areas. The wholesale business of domestic refined oil is in the charge of PetroChina Company Limited and SinoPec Company Limited, other units or companies (including oil refineries) are not allowed to get involved. Generally speaking, oil refineries are forbidden to sell refined oil, in order to carry out unified distribution. The gasoline and diesel oil produced by refineries other than the two Companies are subject to the uniform management and uniform purchase by the two Companies. And they are also responsible to distribute the gasoline and diesel oil to gas stations for sale.

(4) Reform of Oil Prices

The circular of the State Development Planning Commission on printing the statement of Comrade Zeng Peiyan made at the videophone conference on nationwide oil price

reform. (NO. 〔2000〕681, June 2nd, 2000)

In order to implement the decision of the State Council to integrate the domestic refined oil prices with those of the international market, we will further enhance our awareness of the importance of reforming crude and refined oil, and of establishing a mechanism; we will also make plans for adjusting the refined oil prices and for directing the work after the price adjustment plan is formulated, so as to ensure the stable economic order and social life.

To further adjust the domestic refined oil prices, improve the price-forming mechanism of oil and achieve the integration with the prices in the international market.

In order to support the reform and restructuring of PetroChina Company Limited and SinoPec Company Limited, and accelerate the pace of oil price reform, the State Development Planning Commission, with the approval of the State Council, promulgated the Reform Program for Crude and Refined oil Prices in June, 1998, reformed the price-forming mechanism of our crude and refined oil. A price-forming mechanism of crude and refined oil that is consistent with the international oil price fluctuations under the control and regulations of the government, has basically taken shape. The settlement price of domestic crude oil is composed of two parts: the criterion price and the agio. The criterion price is decided by the State Development Planning Commission per month based on the F.O.B price of oil that is of similar quality; the agio is decided through consultation between sellers and buyers. The government-guided price is exercised for the retail price of gasoline and diesel. The State Development Planning Commission will fix and announce the middle retail prices for localities based on the tax payment cost of gasoline and diesel oil import from the international market. And PetroChina Company Limited and SinoPec Company Limited will set the concrete retail price in a range of 5% upper or below the middle retail price.

In 1998, after the introduction of the reform plan for oil price-forming mechanism, drastic changes took place in the international oil market. Under the influence of the measures taken by OPEC to limit the refined oilion and maintain oil price and with the increasing demand for oil due to global economic growth, esp. Asian economic recovery, the price of crude oil in the international market that remained in the doldrums began to increase greatly since April 1999. And in the first ten-day period of March 2000, the price of crude oil per barrel exceeded US 30 $, the highest price since the gulf war.

So far, the price of crude oil in the international market is still operating at high price level. Under the influence of the rising crude oil price in the international market, domestic oil refineries suffered serious losses, those refineries affiliated to PetroChina Company Limited and SinoPec Company Limited suffered a loss of 4.6 billion and 3.3 billion Yuan respectively when it suffered most. In some provinces and cities, oil began to be short supply; the price soared, exceeding the ceiling of government-guided retail price. In order to adapt to the changes of oil prices in the international market, alleviate the losses of domestic oil refineries, and ensure the supply of refined oil, the State Development Planning Commission raised the domestic producer prices and middle retail prices of refined oil three times, in November of 1999, February and May of 2000 respectively.

According to current oil price-forming mechanism, domestic crude oil basically achieved a market-oriented price-forming mechanism, which is subject to the price

fluctuations in the international market every month. While the retail price of refined oil is still exercising government-guided price, it doesn't undergo synchronized adjustment with the crude oil price. The price of gasoline and diesel oil still has a long way to go to catch up with that in the international market and the price of refined oil is lagged behind the price fluctuations in the international market. It leads to two results: one the one hand, oil refineries suffer serious losses, production is discouraged, and stable market supply is affected; on the other hand, market oil prices in some provinces rise by themselves at different degree, which incurs the disorder of price order and add the difficulties in managing prices.

In dealing with this situation, the State Council decides to further accelerate the pace of integrating the price of refined oil with that in the international market, and improve the price-forming mechanism of refined oil. The State Development Planning Commission fixes the criterion prices of crude and refined oil according to the international market price and adjusts them once a month. The increase of the refined oil price this time is to implement the decision made by the State Council, and an important mark to improve the price-forming mechanism of refined oil.

(5) China's Oil Laws and Regulations

Since the 1980's, China's legislative work in the field of oil has been reinforced. In January of 1982, the State Council promulgated the Regulations for Joint Development of Ocean Oil Resources with Foreign Countries of the People's Republic of China; in December of 1987, the former Ministry of Oil Industry, with the approval of the State Council, enacted the Temporary Measures of Registration Management of the Exploration and Development of Oil and Natural Gas; in March of 1989, the State Council promulgated the Regulations for the Protection of Oil and Natural Gas Pipelines; in September of 1989, the former Ministry of Energy, with the approval of the State Council, enacted the Regulations of Compensation for the Damage from oil seismic prospecting; in September of 1990, the former Ministry of Energy enacted the Temporary Measures of Registration and Management of the Exploration and Development of Oil and Natural Gas; and in October of 1993, the State Council promulgated the Regulations for the Joint Development of Land Oil Resources with Foreign Countries.

In accordance with the above-mentioned laws, and administrative rules and regulations, China's oil laws and regulations mainly include: First, the oil resource ownership. China adopts mineral resource ownership system; the oil resource ownership is the implementation of mineral resource ownership in oil industry. Oil resources are owned by the state, which are not changed with the ownership and the right of use of the land where the oil resources are located. The State Council, on behalf of state, exercises the ownership of oil resources, and the departments responsible for geography and mineral deposits under the State Council carry out unified distribution of oil resources. The state implements compensatory exploitation of oil resources; the person who has the right of exploitation has to turn in 1% of their profits from crude oil and natural gas to the state as a compensation for mineral resources. This regulation establishes the oil resource ownership system of the state, clarifies the major subjects and executive institutions of the state ownership, and establishes the realization model of compensatory exploitation. The state mineral resources ownership, which has long been regarded as a political slogan under the planned economy,

is enshrined in the laws. It didn't begin to be institutionalized until the promulgation of the Law on Mineral Resources and Civil Code in 1986; and the state didn't clarify the major subjects and executive institutions of the state ownership or establish the compensation system for mineral resources until 1994. Since then, the state ownership system went into effect. One point is noteworthy: Only when the market economy develops to a certain degree, can the state oil resource ownership have current operation. Undoubtedly, the operation of the state ownership lays the foundation for the initiation and operation of oil resources property rights.

Second, the oil mining right. The oil mining right is the implementation of mining right in oil industry. The practice of exploring and exploiting oil and natural gas in Chinese territory and sea areas within its jurisdiction must have the formalities for oil and natural gas exploration, rolling prospecting and development and exploitation, draw the licenses for oil and natural gas exploration and exploitation to attain the right of exploring or exploiting the oil deposits. The nationwide oil and natural gas exploration, exploitation and registration are under the first-degree management of the departments responsible for oil industry of the State Council, local people's governments at provincial and municipal levels and those of autonomous regions provide assistance. The exploration permit is registered in two periods: basin assessment exploration and district industry prospecting. Basin assessment is not exclusive, but the working area is not repeatable; district industry prospecting is exclusive, the permit period is decided in terms of the period of exploration work, but no more than 5 years. The permit for rolling prospecting and development is exclusive. The condition is getting industrial oil-gas current after basin assessment, or entering into district industrial exploration; and the geographical condition is complex; part of the basically proved and controlled reserves has been attained. The permit period is 15 years and is examined every 3 years. The exploitation permit is exclusive with the condition that plan task paper, reserve report, feasible research report of oilfield construction, design of oilfield development and construction have been examined and approved by the departments responsible for oil industry under the State Council. Permit period is generally in conformity with the designed period for oilfield development and construction, which has been examined and approved. Oil mining right appears as a major content of property right institutionalization of national mineral resources. It not only is the result of the exercise of state ownership and executive right, but also makes it possible for investors to seek their interests, and provides conditions for the rationalization of property right structure of oil mining. Although this regulation was first introduced in the 1980's, yet it didn't really bring property right function into play. The major production and operation target of oil mining are still decided by government administrative order and planned task. Since the 1990's, the oil mining right has a trend to give a play to the property right function.

Third, the regulation of joint development of land oil and offshore oil resources with foreign countries. Departments authorized by the State Council are responsible for the division area of cooperation on land and in ocean, decide cooperation models, formulate relevant policies and measures for resource planning and development, and examine and approve the general development plans with foreign countries. The PetroChina Company Limited and the China Ocean Oil Company are respectively responsible for the businesses

on land and in ocean with foreign countries, inviting tenders and negotiate with foreign companies to sign and execute the cooperation contract of land and ocean oil. They also enjoy the exclusive right to cooperate with foreign companies to explore, develop, process and sell the oil on land and in ocean. The Ministry of Foreign Trade and Economic Cooperation is responsible to approve cooperation contract and make it effective. Except that there are other regulations besides laws and oil contract, foreign cooperators should solely fund the exploration and undertake its risk. After discovering the oil-gas field that has commercial value, foreign investors and the PetroChina Company Limited or the China Ocean Oil Company jointly fund and develop it. And foreign investors should undertake the development and production work until the PetroChina Company Limited or the China Ocean Oil Company take over the work according to the contract. Oil contract adopts the practice of dividing products into different categories. Foreign cooperators can get back their investment and cost and make profits from produced oil according to the contract. They can ship the oil that they deserve or have purchased outside China and the return of their investment, profits and other legitimate income can be remitted outside China, according to relevant laws and contract. The regulation of joint development of land and ocean oil resources with foreign countries is the arrangement China made to regulate the oil industry according to international practices and prevailing rules. This regulation establishes the national oil company regulation and oil contract regulation, and integrates China's law on the rules of joint development of oil resources with international rules. Since the implementation of the regulation of joint development of ocean oil resources with foreign countries for over 10 years, we have not only built nearly 20 oil-gas field and attracted foreign capital of nearly US 4 billion$, but also introduced advanced technology and management expertise, build up our team working at sea, nurtured a large group of staff that have experience of foreign cooperation and made remarkable economic achievement. And good result has been achieved since the regulation of joint development of land oil resources with foreign countries for 2 years.

Fourth, the regulation of the protection of oil and natural gas pipelines. The departments responsible for oil industry under the State Council are responsible for the supervision and management of security and protection work of oil, natural gas pipelines and its auxiliary facilities. The local government at various levels along which pipelines go through are responsible for the education of pipeline security and protection, and provide assistance for relevant protection issues. The public security organs there are responsible for the investigation of cases of destroying, stealing and looting pipelines and their auxiliary facilities. Pipeline companies are responsible for the safe operation of pipelines and their auxiliary facilities within their jurisdiction, such as strict implementation of technical operation and safety regulations of pipeline transportation, inspection at regular basis and timely maintenance. Any other unit and person has the obligation to protect pipelines and their auxiliary facilities, can't jeopardize pipelines and their auxiliary facilities, and has the right to check harmful behaviors and report the cases to the departments concerned. After this regulation was put into practice for 7 years, it has been played a positive role in guaranteeing the normal operation of oil and natural gas pipelines, and safeguarding public security.

Fifth, the regulation of compensation for the damage from oil seismic prospecting. The

damage from oil seismic prospecting and seismic wave should be compensated. In oil seismic prospecting, the seismic work team offers harmed unit or person compensation according to the real degree of damage. The compensation for the damages caused by oil seismic prospecting includes: damage of vehicles on grain crops, and other cash crops, damage of ground facilities, damage to green shoots of grains in the period of freezing weather, damage of rolling over in non-freezing weather, damage to man-made grassland, damage to bamboos and trees, back fill of blast hole. The compensation for the damages caused by seismic wave includes: damage to buildings caused by seismic wave of blasting in wells, damage to ground facilities, damage to motor-pumped well. Different methods are adopted for different types of compensation. Damage to barren hills, wasteland and desert with no crops planted, cultivated land and grassland with no crops planted in freezing weather, idle land, or wasteland that is not contracted should not be compensated, nor is the damage to crops, green shoots of grain or ground facilities that are put into place just before the prospecting work. This regulation sets the range and cost calculation of the compensation for damage of oil seismic exploration, and plays its role in ensuring the smooth operation of oil exploration.

With the accelerating pace of the transition of China's oil industry from planned economy to market economy, it is more obvious that the current oil law and regulations is neither suitable nor rational. Since China's current oil law was formulated under the planned economy and when there was a transition from planned economy to market economy, its level and effect are low (most are basically administrative regulations) and the scope is rather narrow (mainly of upstream of oil industry). For its most part, it is obviously provisional, infeasible and made for emergencies. It is also obvious that its regulations are not rationally arranged. For example, the property system of oil industry, such as the oil resources ownership, the oil mining right, should have been arranged by legal regulations, but it is arranged as administrative management system by administrative regulations. Thus the property system was weakened, the border was blurred and the advantage of system cannot be displayed. Though the state ownership subject is shifted from the abstract state to the State Council, it cannot provide a dynamic structure for the state ownership to economically develop itself. It cannot rationally charge compensation for mineral resources, nor can it market the resources, let along the reduction of the social transaction cost. The oil mining right is not subject to the economic control of the state ownership, and it is not or less limited by the cost of resources. Basically, it is a means to fulfill planned orders and tasks, but not a means for those who have oil mining right to have economical and rational behaviors or for their self-discipline.

Therefore, China's current property right system of oil industry badly needs innovation. The combined arrangement of state ownership and administrative right, the substitution of the exercise of ownership by administrative right, and the confusion of resource sovereignty and resource ownership are usually the institutional foundation of this property right arrangement; and the negation of the value of natural resources provides its theoretical foundation. So the separation arrangement of state ownership and administrative right and the affirmation of the value of natural resources are undoubtedly the starting point for the innovation of property right system of the oil industry. The regulation of joint development of land and ocean oil resources with foreign countries will continue to function. And the

organizing system of state oil companies must be institutionalized and establish a steady behavior mechanism through the procedures set in the law that identifies the status, nature and organization of state oil companies. The difficulty of institutional innovation is to identify the nature of the exclusive operating right of state oil companies and the relationship between state oil companies, foreign cooperators and commercial oil companies. The current exclusive operating right is administrative property right authorized by the government through administrative regulations. And such property right structure is a combination of administrative right and ownership. Therefore, current exclusive operating right is not mining right; moreover, it falls into the category of non-competitive dictatorial right. From a long-term point of view, it is favorable to turn the exclusive operating right into the attorneyship of the state ownership without its administrative attribute. Under current exclusive operating system, the foreign cooperators involved in the oil contracts assume all the risks of exploration, but the nature of their rights is not clearly defined. They are not the subjects of mining right, but only target against the third party with the right set in the oil contracts. Obviously, this is not conducive to the protection of foreign cooperators.

If state oil companies choose and determine foreign cooperators to explore and exploit the oilfield through oil contract, which goes into effect with the approval of the government, it not only enables the subject of oil contract to “bargain” with least limitation, but also reflects the resource sovereignty and strengthens the force of rights enjoyed by both sides. Especially, as the scale of joint development of oil resources continues to expand, the types of oil contract will be increasing, and the parties of a contract may be joint ventures, foreign-owned enterprises, or even foreign oil companies, the nature of foreign cooperators’ (investors’) oil contract right must be solved in laws. Oil exploration, exploitation bidding and oil contract are also applicable to domestic oil exploration and exploitation, which makes it more necessary to solve the nature of parties’ rights of oil contract. The solution of the nature of oil company’s exclusive operating right is also conducive to define the relationship between national oil company and commercial oil company through oil contract. Taking into consideration the strategic significance of oil as energy, national oil company should still retain monopoly operation and direct investment of part of state large-scale oilfields; multiple-subject investment development are encouraged for other oilfields, esp. old oilfields and marginal oilfields. The subject of exploration and exploitation is decided according to contract, and it becomes effective with approval of the government. The exercise of the regulation of protecting oil and natural gas pipelines and the regulation of compensation for the damage from oil seismic prospecting can be guaranteed through further improvement of law enforcement institutions. In addition, oil processing right, regulation of oil supply adjustment and regulation of oil development fund will be set up. As a complete set of law and regulation for oil industry comes into existence, the integration of China’s legal systems of oil industry with international practices is guaranteed. Therefore, it is a must for China to formulate Oil Law, making new arrangements for the legal system of its oil industry.

The legal system of oil industry arranged in China’s Oil Law includes: First, property right system of oil resources. Its purpose is to arrange an economic dynamic structure that seeks the maximum value of oil resources so as to put oil resources into the market. This

system is composed of the ownership system, the mining right system and the transaction-cost system of oil resources. It concretely arranges the status, rights and obligations (the division of work and the function of governments, departments or state oil companies should be clarified in the realization of the property right) of the representatives and agents of state oil resource property right, the bidding and leasing procedures of oil investment projects, the rights and obligations of the parties of oil contracts, the calculation and payment of using mining areas and the resolution to resource disputes, etc.

Second, property right system of oil enterprises. Its purpose is to arrange multiple property right subjects, expand the channels for oil enterprises to make investment, adopt the practice of separating the property right structure of state oil companies and commercial oil companies, which not only makes those who are in charge responsible for capital obligation and efficiency cost, but also makes oil companies become real market right subjects. This system is composed of the state oil company system, commercial oil company system, foreign investment system, and anti-monopoly and fair competition system. It concretely arranges the organization, capital structure, obligation, legal status of state oil companies, the organization, capital structure and responsibility capacity (it should be consistent with the Law of Corporations) of commercial oil companies, the forms, conditions and procedures of exploration and exploitation invested by foreign oil companies, the involvement of oil industry and the measures and strategies of anti-unfair competition.

Third, government regulation system of oil industry. Its purpose is to identify the nature and scope of government regulations, and makes government regulations of oil industry authoritative and efficient while limiting government allocation of oil resources. This system is composed of administrative subject system, permit system, permit system, supervision and examination system, planned supply system, price regulation system, taxation system, fund system of oil industry and strategic reserve system. It concretely arranges the regulation subject of oil resources and industry and its rights and obligations, including the application, examination and grant conditions and procedures on activities of oil industry, such as exploration, exploitation, refining, reserve and transportation, supply foreign trade, the scope of government supervision and inspection, the obligations of administrative objects, the scope, content and effect of planning, government pricing or conditions and procedures of government regulation of prices, crude oil and refined oil, types of taxes oil enterprises have to pay, the elements of tax payment, the composition of fund and capital of oil industry, the range of its use, administrative subject, the scope of oil strategic reserve and regulation subject.

Fourth, external cost regulation system. Its purpose is to avoid internal economic externalization and external economic internalization of oil industry, maintain a sustained development of oil industry and create a sound investment environment. This system is composed of the oil environment system, the pollution damage of reparation and compensation system, and the rights and interests relief system of oil enterprises. It concretely arranges the measures of implementation and enforcement of environmental protection of oil industry, the obligations of government supervision and property right subjects to prevent and control environment pollution, the reparation and compensation procedures and the cost calculation method of pollution damage, the check of behaviors

that violate others' lawful rights, and the special relief obligations of government and judicial organs.

Fifth, oil processing and refining system. Its purpose is to enhance the efficiency of oil processing and refining, achieve stable supply of refined oil and protect consumers' rights and interests. This system is composed of the processing and refining subject system, the equipment and processing capacity monitoring system, the refined oil quality and technology supervision system. It concretely arranges the rights and obligations of those in charge of oil refining, the government control of production equipment and processing capacity, the force of refined oil quality standard, and the procedures for product authentication and spot check.

Sixth, oil reserve, transportation and supply system. Its purpose is to ensure safe reserve, transportation and market supply of oil and natural gas. This system is composed of reserve and transportation subject system, refined oil storage system, pipeline protection and access system, and supply subject system. It concretely arranges the rights and obligations of the reserve and transportation subject, the protection of pipeline routes and facilities, the conditions and cost of pipeline access, and the rights and obligations of supply subject.

Seventh, oil trade system. Its purpose is to satisfy China's refined oil supply and encourage Chinese oil industry to participate in the competition in the world oil market. This system is composed of the oil import and export trade management system and external investment management system. It concretely arranges the conditions, principles, limits and prohibition procedures for the import and export trade of crude oil and other refined oil, which is consistent with the Foreign Trade Law, and the examination and management of external investment.

Eighth, legal liability. Its purpose is to punish the party that violates the oil legal liability, and safeguard the property right efficiency of oil industry. This system is composed of administrative relief system and judicial relief system. It concretely arranges the nature and type of violation behaviors, the subject and limits of administrative punishment, sanction measures, and the types and conditions of judicial treatment and punishment.

Besides rectifying the deficiencies of current system, the arrangements in above laws and regulations of China's Oil Law better suit the reality of China's oil industry moving gradually towards market economy, integrate China's laws and regulations of oil industry with international practices, and theoretically, it will achieve the institutional innovation and changes of performance over cost. Still, we have to make choices on how to arrange oil laws and regulations, how to present them in legal regulations and provisions, and on legislative thinking and techniques.

Table 4-1. Major Oil Policy Assessments

NO.	Major Oil Policy	Result of Assessment	Cause
1.	The Decision of State Council to Implement Measures of Overall Rationing System of the Ministry of Oil Industry to Produce 1,000 Million Tons of Crude Oil, June 3rd, 1981	Good	Since its implementation, the fund raised from 1981 to 1985 reached 11.73 billion Yuan, accounting

			for 93% of the state investment.
2.	The Regulations of Joint Development of Ocean Oil Resources with Foreign Countries of The People's Republic of China, January 30th, 1982	Good	The adoption of the policy of reform and opening-up.
3.	The Temporary Measures of the Registration Management of Exploration and Exploitation of Oil and Natural Gas, December, 1987	Good	The realization of regulated management of oil industry.
4.	The Temporary Regulations of the Payment of Using Mining Area in the Joint Development of Land Oil Resources With Foreign Countries, NO. 3 order of the State Council, January, 1990	Good	The clarification of the payment of using mining area.
5.	The Regulations of the Joint Development of Land Oil Resources with Foreign Countries, NO. 131 order of the State Council in 1993, October 1993.	Good	The realization of opening land oil industry to the outside world
6.	The Circular of the State Council of Approving the Measures of Reforming the Circulation Mechanism of Crude and Refined oil of the State Development Planning Commission and the State Economic and Trade Commission, NO. 〔1994〕 21, April 5th, 1994	Poor	It couldn't suit the market economic system
7.	The Circular of the Reform Program of the Prices of Crude and Refined oil, NO.〔1998〕52, June 3rd, 1998.	Fairly good	The realization of integrating with the world

Ⅴ Renewable Energy Policy

1. Overview of the renewable energy policy

China is the largest developing country in the world with 700 million people living in the rural areas. The social and economic development of rural areas is seriously hampered by energy shortage and low-level utilization of energy. Owing to fuel shortage, forest is excessively exploited, vegetation is destroyed and the ecological environment is deteriorated. It is imperative that we must find a road to the sustained development of energy from the strategic point of view of long-term development of energy.

New energy resources and renewable energy resources produce little or no pollution. It is of great significance to develop and make full use of new and renewable energy resources and to coordinate the economic development and the ecological environment. We must grasp opportunities and make policies that suit the objective of building a well-off

society in an all-around way and promote the development of renewable energy.

2. Assessment approaches of the renewable energy policy

(1) Analysis of factors that affect the implementation results of renewable energy policies

Mainly include: 1) the economic factor; 2) the environmental factor; 3) the energy factor. Energy utilization efficiency and energy supply security are objectives of China's long-term energy strategy. Renewable energy policy must conform to these long-term objectives.

(2) Assessment criteria of renewable energy policy

Based on the above analysis, the implementation results of renewable energy policies are reflected by three aspects, namely, the improvement of economic efficiency and energy utilization efficiency and the reduction of environmental pollution, so assessment criteria of renewable energy policy are composed of economic criterion, energy criterion and environmental criterion.

(3) Evaluation Methods for policies regarding renewable and new recourses

In order to correctly evaluate the effect of policies of renewable recourses with economic, energy, and environmental targets, we conducted information questionnaires with experts in this field. After comprehensive analysis of those experts' opinions, according to the changes of the targets, we evaluated those policies with four criteria, good, relatively good, average, and relatively bad,

3. Assessment results and analysis of the renewable energy policies

(1) Statistics of assessment results

Among the nineteen chosen renewable energy policies, eight were good, accounting for 42%; 10 were fairly good, accounting for 53%; one was poor, accounting for 5%. Generally speaking, they were well implemented and thus produced good results.

Table 5-1 Statistics of Assessment Results

	Total	Good	Fairly good	Medium	Poor
Number	19	8	10	0	1
%	100	42	53	0	5

(2) Directive and Guiding Policies

Among the eight chosen directive and guiding policies, three were successful, accounting for 37.5%; 3 were basically successful, accounting for 27.5%; two were basically unsuccessful, accounting for 25%. Because the states regarded the chose policies as annual plan and long-term plan, generally speaking, they were well implemented and thus produced good effect.

(3) Economic Inspiring Policies

Seven policies were chosen, six were basically successful, accounting for 86%; One was relative unsuccessful, accounting for 14%. Inspiring policies can be effective measures of the development of renewable recourses. Generally speaking, they produce positive effect.

(4) Research Policies

Regarding the three chosen policies, research policies of renewable recourses are needed, and usually produce positive effect.

(5) Market Policy

Renewable recourses are at an early stage of development. Many technology and products needs to explore the market. Market exploring polices are welcomed by governments at all levels and enterprises, and receive positive effects.

4.Experiences and lessons

(1) Attach emphasis to macro-policy

The advantage of macro-policy is that it enjoys high flexibility and various choices are available. Its disadvantage is that it can be hard to implement without a detailed implement plan. Moreover, it changes according to the reality and situation.

(2) Economic inspiring policies are good measures for the development of renewable recourses

Main experiences and lessons are as follows:

1）In our country, subsidies for renewable recourses depends on government financial expenses, which is not a lasting measure.

2）As to the subsidy strategy, development of producing scale and decrease of cost can be achieved, if practical subsidy system is established, subsidy targets are specified, investors are subsidized, and fair competition are introduced.

3）Tax favorable policy is easy to be carried out and only reduces a part of central and local income. However, many taxes are not counted in the cost, only affect the price of the product. Once this policy is abandoned, the enterprises would find it hard to survive. This kind of policy hardly promotes the technology improvement of the enterprises.

4）Favorable price is a very effective measure. The key is to find a reasonable fund for the subsidies and to choose the right subsidy receivers.

5）It is necessary to choose the right loan receivers and establish modern loan process, and improve the economic efficiency of discount interest of the loans.

(3) Financial Support

Funds for the scientific research of renewable energy resources are insufficient. The central government are interested. However, local governments and entrepreneurial circle were hardly involved.

(4) Reasonable Operation System

More and more practice proved that, among all those factors counteracting the development of renewable energy resources, operating system is a problem more difficult than technological problem and economic costs. More research and exploration are needed in this aspect.

(5) Legislation Support

Practice proved that strengthening legislation will assure the development of renewable recourses. The key is that related sections in the government should conduct studies and produce detailed plans and rules.

(6) Public Consciousness

By promoting national public consciousness, the participating ability and passion of the public will be enhanced in the research and exploration of renewable energy resources.

Table 5-2. Overview of Renewable Energy Policies

NO	Content	Result	Brief reasons
	Ⅰ Directive and guiding policies		
1.	The former Development Planning Commission proposed the principle of energy development of "suiting measures to local conditions, complementing with multiple energy resources, comprehensive utilization and stressing actual results" in the 6th Five-Year plan in 1982.	Good	Have been brought into the long-term social and economic development plan and be generally implemented.
2.	On Dec. 1983, the State Council decided to set up 100 pilot counties to be accessible to electricity and gas in rural areas.	Good	Be specific, practicable and achieve obvious results.
3.	In 1995, the National People's Congress promulgated the Power Law to give support to the electricity generation of renewable energy.	Fairly good	Encourage electricity generation by developing renewable energy. But not many specific measures were carried out.
4.	In 1997, the National People's Congress promulgated the Energy Law to strengthen the development of the rural energy and encourage the use of the renewable energy.	Fairly good	Encourage electricity generation by developing renewable energy. But not many specific measures were carried out.
5.	With the State Council's approval, the State Development Planning Commission promulgated the list of major encouraging industries, products and techniques, with renewable energy in the list.	Good	Guide the enterprises to advance the techniques and develop the renewable energy products by the force of market.
6.	In 1996, the former State Development Planning Commission made the development outline of new and renewable energy between 1996 and 2010, including the new and renewable energy projects. In 1995, the State Development Planning Commission, the Science Commission and the Commission of National Economy and Trade proposed the objectives, tasks and priorities of the new and renewable energy projects between 1996 and 2010.	Fairly good	Can be brought into the long-term social and economic development plan and will be implemented step by step.

7.	Since the reform and opening up to 1996, the related commissions promulgated 30 standards of renewable energy, 6 industrial standards and 3 technical standards.	Good	These standards have been carried out in various industries and give an impetus to the development of the renewable energy.
8.	The Tenth Five-Year Plan of new and renewable energy in 2000. The State Development Planning Commission, the Science Commission proposed the objectives, tasks and policies.	Fairly good	Have been brought into the Tenth Five-Year Plan and will be implemented step by step.
Ⅱ Economic Inspiring Policies			
9.	Regulations of Management in the Electricity Generation of Merging power grids, in 1994. In 1996, the State Development Planning Commission, the Science Commission made the Regulation of Air-power Generated Electricity Price.	Poor	Lack of coordination with the current power system and the implementation was poor.
10.	Notice on Supporting the Development of Renewable Energy, in 1999, the State Development Planning Commission and the Science and Technology Ministry, loan preference to renewable energy projects	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.
11.	Set up the discount credit of rural energy, the State Council, in 1987. The central Financial Department provides the capital to subsidize the renewable energy projects in the interest of 50% of the Industrial and Commercial Bank.	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.
12.	Preference in duty and value added tax, the State Development Planning Commission and the Ministry of Finance, 50% reduction of air-powered blower.	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.

13.	Preference in value added tax, the State Development Planning Commission and the Ministry of Finance and the local government made a lot of preference policies for the renewable energy projects.	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.
14.	Preference in enterprise revenue tax, the State Development Planning Commission and the Ministry of Finance, the new enterprises of renewable energy in the high-tech industry zones can be exempt from enterprise revenue tax for two years.	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.
15.	Subsidy policy of renewable energy, the related ministry and the local government subsidize the management, construction, investment, research and development of renewable energy projects.	Fairly good	Employ the economic policy to promote the development of the renewable energy, and effect is good, but the implementation needs to be strengthened.
Ⅲ Research Policies			
16.	In May, 1986, the State Council proposed the major points of the technology policy in 12 fields, and put forward the renewable energy technology development policy.	Good	Provide guidance by technical policy, suit the interests of the enterprises and conform to the rules of market economy development. The results are good.
17.	Since the reform and opening up, the Science and Technology Ministry set the task funds of the renewable energy, with investment of 100 billion Yuan per year to research the renewable energy projects.	Good	Support the construction and demonstration of renewable energy projects. The results are good.
18.	Since the reform and opening up, the Agricultural Ministry built a training network. By 1997, the trainees accounted for 378 thousand.	Good	Train talents, spread techniques, and promote the development of renewable energy and rural energy.
Ⅳ Market Policy			
19.	Since the reform and opening up, the Agricultural Ministry built a promotion system and team to spread the rural energy techniques.	Fairly good	Make use of the promotion system, strengthen the implementation and build the technological team.

Ⅵ Environmental Policy Assessment

Constitution of People's Republic of China adopted in 1978 stipulates for the first time that "The state protects and improves the living environment and the ecological environment, and prevents and controls pollution and other public hazards." It provides constitutional guidance to environmental protection legislation and environmental protection.

Environmental Protection Law promulgated in 1979 marks the start of the construction of environmental legal system.

Environmental legislation has been much improved since 1980s. By 2000, the Standing Committee of National People's Congress passed and amended no less than ten laws of environment and resources, and the State Council and the relevant government administrations made a series of rules and regulations on environmental protection. The follows are brief review on environmental protection laws, rules and regulations.

In 1982, the State Council promulgated Decision on Strengthening the Environmental Protection During the Period of National Economic Rectification, supplement to and specification of Environmental Law (on trial) of 1979.

In 1987, the Standing Committee of National People's Congress passed Law of Atmospheric Pollution Prevention of People's Republic of China that was implemented on July 1,1988.

In 1989, the Standing Committee of National People's Congress passed the amendment to the Law of Environmental Protection of People's Republic of China of 1979 (on trial) and promulgated Law of Environmental Protection of People's Republic of China, in which "Three at the Same Time" systems of environmental influence appraisal of construction projects, extra standard sewage charges and rectification of institutions of serious pollution in a given time were illiterate in specific articles of law.

Table 6-1 Assessment of Energy Environmental Policies

NO	Contents	Results	Brief reasons
Ⅰ Industrial policies			
1.	In 1981, the State Council promulgated Decision on Strengthening the Environmental Protection During the Period of National Economic Rectification	Good	Stress the importance of the environmental protection, and pay attention to the coordinating development of energy, economy and environment.
2.	In 1983, the State Council issued the Regulations of the Prevention of Industrial Pollution Combined with the Technological Transformation.		
3.	In 1987, the Atmospheric Pollution Prevention Law of the P.R.C.		
4.	In 1989, the State Council issued the Resolution of Major Points of Current Industrial Policy.		

5.	In 1997, the State Environmental Protection Administration issued the Advice on the Promotion of Clean Production.		
Ⅱ Sewage charges			
6.	In 1982, the State Council issued Provisional Regulations of Sewage Fees	Fairly good	In 2002, there were 918 thousand institutions that paid sewage fees, and the total number of sewage fees was 6.74 billion Yuan, of which 6.66 billion Yuan was used for sewage control. But low standards of sewage charge failed to encourage sewage enterprises to voluntarily build facilities to control/ treat pollution.
7.	In 1987, the Atmospheric Pollution Prevention Law of the P.R.C.		
8.	In 1992, the State Environmental Protection Administration, the State Bureau of Commodity Price, the Ministry of Finance and the State Council jointly issued the Notice on Pilot Work of Sulphur Dioxide Emission Charge.		
Ⅲ Environmental Protection of construction projects			
9.	In 1984, the State Council issued the Resolution of Environmental Protection.	Fairly good	2002 witnessed 237.225 thousand new construction projects, including newly building, rebuilding, extension, and technological transformation, 98% of which, 233.08 projects carried out the system of environmental influence appraisal. Investment in environmental protection accounted for 200.449 billion Yuan, 0.6% of total investment in corresponding period. In 2002, 100.298 thousand projects were completed and put into production. There should be 53.287 projects that adopted “Three at the Same Time” systems. The total investment of “Three at the Same Time” projects accounted for 755.04 billion Yuan. 51196 projects were checked and accepted, 96.1% of all.
10.	In 1986, the Environmental Protection Committee of the State Council, the State Development and Planning Commission and the Commission of State Economy jointly issued the Regulations of the Construction of the Environmental Protection Projects.		
11.	In 1987, the Standing Committee of National People’s Congress passed Atmospheric Pollution Prevention Law of the P.R.C, prescribing that the environmental influence projects must make assessment of the atmospheric pollution and the ecological influence of the construction projects and the preventive measures.		
12.	In 1998, the State Council promulgated the Regulations of Environmental Protection of Construction Projects.		
Ⅳ Urban environmental control			
13.	In 1987, Law of Atmospheric Pollution Prevention of the People’s Republic of China was passed.	Fairly good	By 2002, the area of the urban cities that were provided heating was 1.56

14.	In 1988, the Environmental Protection Committee of the State Council issued the Resolution of Dirt Pollution Prevention in the 32 Major Cities, which asks that the industrial and mine enterprises located in the major cities must meet the standards of dirt emission prescribed by the state or the locality.		billion square meters, 40% of the total area of houses. Among 113 cities approved by the State Council as key cities of atmospheric pollution control and treatment, the air quality of 30 cities reached the set standard, that of 44 cities was of the third degree, and that of 39 cities was below the third degree. Among 47 key cities of environmental protection, the air quality of 18 cities reached the second degree, that of 18 cities was of the third degree and that of 11 cities, heavily polluted, was below the third degree.
15.	In 1991, the State Environmental Protection Administration issued the Implementation Rules of the Law of Atmospheric Pollution Prevention of People's Republic of China.		
16.	In 1996, the State Council issued the Resolution of Environmental Protection.		
Ⅴ Control and treatment of sulphur dioxide emission and acid rain control			
17.	In 1990, the State Council issued the Resolution of Acid Rain Control.	Fairly good	By the end of 2002, 3800 key projects of control and treatment of sulphur dioxide were completed in "the Zones of Two Control". Among them, the installed capacity of desulphur facilities of thermal power units was 4.03 million KW. Desulphur thermal power plants were completed in Sichuan, Shandong, Jiangxi,
18.	In 1995, the Standing Committee of National People's Congress passed the amendment to the Atmospheric Pollution Prevention Law of the P.R.C. (1987). The name of chapter three was changed from the dirt pollution prevention to the prevention of the atmospheric pollution caused by the coal and was added new contents.		

19.	In 1998, the State Council wrote comments on the Distribution Program of the Acid Rain Control Zones and the Sulphur Dioxide Control Zones of the State Environmental Protection Administration		Gansu, Chongqing, Beijing, Taiyuan and Qingdao. In 2002, among 343 monitored cities, there were 64 cities in sulphur dioxide pollution control zone and 117 cities in acid rain control zone. In the two zones, the respective percentage of cities of which annual average density of sulphur dioxide reached the second degree was 40.6% and 79.5%. Compared with 1998, the percentage of sulphur dioxide density in sulphur dioxide pollution control zone increased by 7.8%. But there were still 60% cities that didn't reach the second degree. The cities that reached the sulphur dioxide standards were 8.9% more than that in 1998.
Ⅵ Rectify or close the enterprises of serious pollution And eliminate backward productivity			
20.	1990 年 the State Council issued the Resolution of Strengthening the Environmental Protection.	Fairly good	During the period of the 9th Five-Year Plan, with the focus of economic restructure, 80 thousand small-sized enterprises that produced heavy pollution were closed or eliminated. From 1998 to 2000, 52.5 million small mines, 238 production lines of glass, 85 small-sized steel mills and 3894 small-sized cement plants that operated illegally and produced heavy pollution were closed or eliminated in the whole country. By 2000, the capacity of small units that were closed amounted to 10
21.	In 1995, the Bank of China issued the Notice on Carrying Out the Credit Policy and Strengthening the Environmental Protection. Financial institutions at various levels are not allowed to grant credit of liquid capital to and should recall the granted credit from projects and enterprises which cause heavy pollution and are not approved by the Environmental Protection Bureau, including small steel plants, small nonferrous glass plants, small ferroalloy plants, small petrochemical plants, small printing and dyeing mills, small tannery, small electroplate plants, small refineries, small building material plants and small paper making mills.		
22.	In 1996, the State Council issued the Resolution of Environmental Protection.		

23.	In 1997, the Agricultural Bank of China, the State Environmental Protection Administration issued the Requirement of the Notice on the Prevention of Pollution caused by the Township Enterprises and the Guarantee of the Credit Security, which says that the bank stops granting the credit to , legally freezes the enterprises' account of, blocks the current assets of and revokes the credit from the 15 enterprises that are mentioned in the Resolution of Environmental Protection of the State Council		million KW, of which 7.78 million KW belonged to State Power Corporation. 2002 witnessed the completion of 24668 treatment-in-given-time projects, the total investment of which amounted to 10.18 billion Yuan, and the elimination of 8184 enterprises. Some officials didn't conduct environmental assessment. Some local governments, with little awareness of environmental protection and ignorant to legal system, stress the short-term interests and pay no attention to long-term development. They even invite outside investment at the expense of environment in blind pursuit of economic growth rate. At the same time, some local governments interfere in the enforcement and supervision of environmental law, as a result, enterprises that produce pollution can hardly be prosecuted for their illegal practices and there is resurgence of small-sized enterprises that produce heavy pollution in some regions.
24.	In 1999, the General Office of the State Council circulated the Advice of Closing down the Small Thermal Power Units and the Advice of Rectification and Elimination of Small Glass Mills and Small Cement Plants of the State Commission of Economy and Trade.		
25.	In 2000, the General Office of the State Council circulated the Advice of Rectification of Small Glass Mills of the State Commission of Economy and Trade.		
26.	In 1999, the State Commission of Economy and Trade published the first list and the second list of the Catalogue of Drawback Production Capacity, Technology and Products.		
27.	In 2000, the Bank of China and the State Commission of Economy and Trade jointly issued the Notice on the Restraint or Prohibition of the Credit to the Duplicated Projects and Drawback Production Capacity, Technology and Products.		
Ⅶ Environmental Protection of west regions			

28.	In 2001, the State Environmental Protection Administration issued the Advice on Strengthening the Environmental Protection of the Construction Projects in the Development of the West Region, which requires that we should “avoid the transfer of drawback technology and equipment to the west region” and “in the implementation of cross-region and cross-river bay projects such as the west to east gas pipeline, the west to east electricity transmission, exercise the experiment work of assessing the environmental influence in the region and river bay.”	Not ready for assessment	

Ⅶ Energy-saving Strategies and Policies

1. Adjustment of energy-saving policies caters to the needs of sustained social and economic development

China enjoys great potential for energy saving and the government always attaches great importance to energy saving. Under new economic circumstances, we should make assessment on energy saving policies without delay, sum up successful experiences and lessons, and adjust the energy saving policies.

2. Criteria of and approaches to energy saving policies assessment

(1) Analysis of factors affecting the implementation results of energy saving policies

1）Economic factor. The economic result is an important criterion for energy saving policies assessment.

2）Environmental factor. The environmental effect is one of important criteria for energy saving policies assessment.

3）Energy factor. Energy saving policies must improve the energy utilization efficiency and guarantee the safety of energy supply.

4）Other factors, for example, technological advancement and economic structure.

(2) Criteria of energy saving policies assessment

On the basis of the above analysis, criteria of energy saving policies assessment include economic criterion, energy criterion and environmental criterion.

(3) Approaches to energy saving policies assessment

In order to properly judge the changing tendency of assessment criteria, we divide the implementation results into three levels: good, fairly good and poor. In addition, we send experts questionnaires and give an overall analysis of the experts’ comments, on the basis of which we make comprehensive assessment in order to increase the accuracy of the assessment.

3. Assessment results of energy saving policies and the brief reasons

(1) Energy saving rules and regulations

According to incomplete statistics, China promulgated and implemented 22 energy saving rules and regulations during the period between 1980 and 2000 (see Table 7-1). Among them, 11 items produced good results, 50 percent of all, 10 items fairly good results, 46 percent of all, 1 item poor results, 4 percent of all. The assessment results show that, generally speaking, the implementation results of energy saving rules and regulations are good. The features are as follows: 1) showed striking features of administration of the planned economy system; 2) insufficient consideration on sustained economic and social development; 3) showed the features of administration system transitional economy; 4) the majority of rules and regulations, in conformity with the national conditions then, produced certain results, but with the development of market economy, they became less and less practical.

Table 7-1 Assessment Results of Energy Saving Rules and Regulations

NO	Contents	Results	Brief Reasons
1	Decree of Cutting down the Oil Fuel of Various Boilers and Industrial Boiler, June 27, 1980	Fairly good	Save oil export, support economic development. Insufficiently aware the importance of energy efficiency and environment quality.
2	The State Council issued the Decree of the Electricity Consumption Saving, April 15, 1981	Good	Save electricity and coal, ease the contradiction of supplies and demands and protect environment.
3	The State Council issued the Decree of the Refined Oil Saving, NO. [1981] 58, April 17, 1981	Good	Save oil, alleviate the contradiction of supplies and demands, improve utilization efficiency and reduce atmospheric pollution.
4	The State Council issued the Decree of the Coal Saving for Industrial Boiler, NO. [1982] 102, July 24, 1982	Good	Save coal and protect environment.
5	The State Council issued the Decree of the Development of the Coal Processing to Reasonably Use the Energy, NO. [1982] 135, Nov. 12, 1982	Good	Coal processing helps promote the clean utilization of coal, improve utilization efficiency and reduce atmospheric pollution.
6	The Commission of National Economy and the China Construction Bank issued the Trial Regulations of the Energy Saving Technological Service, NO. [1982] 609, Dec. 21, 1982	Good	Push forward the energy saving system reform, advance technological development and improve economic efficiency.
7	Commission of State Economy circulated the Rules of Power Consumption by the Ministry of Water Resources and Electric Power	Fairly good	Strengthen electricity management, improve utilization efficiency and economic efficiency and ease the contradiction of supplies and demands.

8	The State Council issued the Provisional Regulations of Energy Saving Management, NO. [1986] 4, Jan. 12, 1986.	Good	Strengthen the legal management of energy saving, improve utilization efficiency and economic efficiency and protect environment.
9	The 15th session of the Standing Committee of the 6th National People's Congress passed Mineral Resource Law, 1986	Good	Reasonably use energy resources, reduce environment pollution and be of benefit to sustained development.
10	The State Council issued the Regulations on Rewards for Reasonable Advice and Technological Transformation on June 4, 1986.	Fairly good	Advance technological development, increase technological content and conform to the sustained development strategies. But too much flexibility played a negative role in results.
11	The State Council circulated the Provisional Regulations of Strengthening the Digging, Transforming and Innovating Work of the Industrial and Transportation Enterprises of the Commission of State Economy, the State Development and Planning Commission and the Ministry of Finance.	Good	Facilitate technological advancement of energy utilization, improve economic efficiency of energy utilization and be of benefit to environmental protection.
12	The State Council circulated the Regulations of Strengthening Electricity Saving of the Commission of State Economy, the State Development and Planning Commission.	Good	Save electricity and coal, allay the contradiction of supplies and demands and protect environment.
13	The State Council issued the Regulations of the Supply and Consumption of the Electricity.	Fairly good	Strengthen the legal management of energy saving, improve energy utilization efficiency and economic efficiency and ease the contradiction of supplies and demands.
14	The Commission of State Economy, the Ministry of Finance, the Department of Mechanics, the Industrial and Commercial Bank of China promulgated the Provisional Regulations of Encouraging the Promotion of the Energy Saving Mechanical and Electronic Products and Stopping the Production of Drawback Products, July 24, 1986	Fairly good	Facilitate technological advancement, improve utilization efficiency of mechanical goods and be of benefit to the economic development and environmental protection. But the implementation was not desirable due to enforcement difficulties.
15	The Commission of State Economy circulated the Regulations of Heating Supply Management (on trial), Jan. 20, 1987	Fairly good	Save coal, reduce atmospheric pollution in cities. But the implementation was not desirable.

16	The State Development and Planning Commission issued the Provisional Regulations of Energy Saving Supervision, NO. [1990] 60, Feb. 20, 1990	Fairly good	Provide scientific basis for increasing the utilization level and reducing environmental pollution. But the implementation was not desirable.
17	The State Development and Planning Commission issued the Regulations of Upgrading the Entrepreneurial Energy Saving Management, NO. [1991] 216, March 2, 1991	Poor	Hardly conform to the needs of market mechanism, hardly beneficial to the enterprises' development and hardly promote energy saving.
18	The General Office of the State Commission of Economy and Trade issued the Regulations of Resources Saving and Comprehensive Utilization of the Technological Transformation (on trial), Nov. 4, 1996	Good	Advance technological level of technological transformation projects, improve energy utilization efficiency and economic efficiency，and improve environment.
19	The State Development and Planning Commission, the State Commission of Economy and Trade, the Ministry of Construction issued the Regulations of Collection and Assessment of the Feasibility Report on the Fixed Assets Investment, Dec. 19, 1997	Fairly good	Strengthen the energy saving management of new projects, improve energy utilization efficiency and economic efficiency, and reduce environmental pollution. But it couldn't be completely carried out.
20	Promulgate the Energy Saving Law, which was implemented from Jan. 1, 1998.	Good	Strengthen the energy saving management of energy saving, improve energy utilization efficiency and economic efficiency, and reduce environmental pollution.
21	The State Development and Planning Commission, the State Commission of Economy and Trade, the Ministry of Electric Power and the Ministry of Construction issued the Regulations of the Development of Combined Production of Heating and Electricity, NO. [1998] 220, Feb. 17, 1998 The General Office of the State Development and Planning Commission issued the Explanation of the issues of the Development of Combined Production of Heating and Electricity, NO. 1999] 318, May 6, 1999	Fairly good	Improve energy utilization efficiency and reduce environmental pollution. But the thermal load couldn't be always carried out and seasonal differences were large, and therefore the energy saving result was not desirable.
22	The State Bureau of Quality and Technical Supervision issued Regulations of Energy Saving Products Certification, Feb. 11, 1999	Fairly good	Facilitate the production and promotion of energy saving products. But the certification efforts needed to step up and the implementation was limited.

(2) Energy saving principles and administrative policies

According to incomplete statistics, China promulgated and implemented 22 energy saving administrative measures during the period between 1980 and 2000 (see Table 7-2). Among them, 11 items produced good results, 50 percent of all, 7 items fairly good results, 32 percent of all, 4 items poor results, 18 percent of all. The features are as follows: 1) generally speaking, the energy saving administrative policies served the implementation of all the energy rules and regulations, facilitated the economic development and helped improve the energy utilization efficiency; 2) a part of administrative policies hardly produced desirable results because of the approach to solving the problem of energy low efficiency by mere administrative measures.

Table 7-2 Assessment Results of Energy Saving Principles and Administrative Policies

NO	Contents	Result	Brief reasons
23	1980, the Central Government proposed that the general principle solving the problem of energy in China was “Development and economy were given equal importance with energy-saving of priority in the near future. ”	Fairly good	Establish the position of energy saving strategy and promote energy saving in an all-around way. But the implementation was not desirable.
24	The Commission of State Economy, the State Development and Planning Commission and the Ministry of Energy issued the Specific Requirements of Energy Saving in the Industrial and Mine Enterprises and in the Urban Cities on May 12, 1981	Fairly good	Improve the energy utilization efficiency in industrial and mining enterprises and reduce environmental pollution in urban cities. The implementation needed to be strengthened.
25	The State Council circulated the Report on the Innovation and Transformation of the Old Cars of the State Development and Planning Commission, the Commission of State Economy, the Mechanical Ministry and the Energy Ministry on Dec. 16, 1981.	Good	Facilitate technological advancement, improve the energy utilization efficiency of cars, have good oil saving effects and improve atmospheric pollution in urban cities. With inflexible target, the effects were obvious.
26	The State Council issued the Decree of the Restraint of Small Refineries and the Elimination of Refinery Boiler	Poor	Hardly conform to market economy mechanism with poor results; there are no obvious economic effects, energy effects and environmental effects.
27	The State Council circulated the Report on the Acceleration of the Transformation of Industrial Boiler to Save Energy on Jan. 5, 1982	Good	Facilitate technological advancement, improve the energy utilization efficiency of industrial boiler, save coal and protect environment.
28	Begin to promote the wood saving cooking stove in 1983	Good	Save firewood and protect rural ecological environment.

29	Commission of State Economy, the State Development and Planning Commission issued the Provisional Regulations of Energy Saving of the Heating System on June 27, 1984.	Fairly good	Save thermal power, decrease coal consumption and help improve atmospheric quality of urban cities. But the implementation needed to be strengthened and energy-saving effects were not obvious.
30	The State Development and Planning Commission, the China Construction Bank and the Industrial and Commercial Bank of China issued paper NO. [1984] 1281 to delegate the regulation powers of the annual plan of small projects of the energy saving capital construction.	Fairly good	Conform to market economy mechanism, but the economic effects, energy effects and environmental effects were not obvious because of difficulties in implementation.
31	The Commission of State Economy issued the Regulations of Upgrading the Entrepreneurial Energy Saving Management, NO. [1987] 51, Jan. 22, 1987	Poor	Hardly conform to market economy mechanism with poor results; there are no obvious economic effects, energy effects and environmental effects.
32	The Ministry of Energy and the State Development and Planning Commission issued the Notice on Strict Restraint of Small Steaming Thermal Power on March 24, 1989.	Poor	Poor results, no obvious economic effects, energy effects and environmental effects because demands exceed supply.
33	State Development and Planning Commission issued the Regulations of Encouraging the Development of the Small Heating and Electricity Joint Production and Strict Restraint of Small Steaming Thermal Power.	Poor	Poor results, no obvious economic effects, energy effects and environmental effects because demands exceed supply.
34	Material Ministry, the Commission of State Economy issued the Provisional Regulations of the Reasonable Use of Coal on Sep. 22, 1989.	Good	Save coal, improve economic efficiency of coal utilization, and reduce environmental pollution.
35	State Development and Planning Commission issued the Advice on the Energy Saving.	Good	Strengthen energy saving management, improve energy utilization efficiency and economic efficiency, reduce environmental pollution and was well carried out.
36	State Commission of Economy and Trade issued the Advice on the Comprehensive Use and the Energy Saving.	Good	Strengthen energy saving management, improve energy utilization efficiency and economic efficiency, reduce environmental pollution and was well carried out.
37	State Commission of Economy and Trade issued the Advice of the Implementation of the Transformation of Air-powered Water Pump on May 5, 1995	Good	Facilitate technological advancement, improve the energy utilization efficiency of air-powered water pump, save energy and protect environment.

38	With the State Council' approval, the State Development and Planning Commission, the State Commission of Economy and Trade, the National Science Committee, the Ministry of Finance, the Agricultural Ministry and the Ministry of Electric Power issued the Instructions for the Continuing Development of the Comprehensive Development of the Rural Energy in the Ninth Five-Year Period, NO. [1995] 2133, Nov. 20, 1995	Good	Improve energy utilization efficiency, improve the quality of living and protect ecological environment in rural areas.
39	The State Council issued the Notice on the Implementation of the 21st-century Agenda of China: the White Paper of China's Population, Environment and Development on July 4, 1994 The General Office of the State Council issued the Advice on Further Pushing the Implementation of the 21st-century Agenda of China	Good	Conform to sustained development strategy, improve the energy utilization efficiency and protect environment.
40	The State Council issued the Notice on Closing down the Illegal and Mal-distributed Coalmines on Dec. 2,1998.	Fairly good	Reasonably develop coalmines, increase extraction rate and reduce the destruction of environmental ecology. But there still exist problems in implementation.
41	The General Office of the State Council issued the Advice on the Rectification of Small Refineries and Standardization of the Refined Oil Circulation of the Commission of Economy and Trade.	Good	Increase extraction rate of light oil, reasonably utilize oil resources, improve economic efficiency，be well implemented and the rectification results were fairly obvious.
42	The General Office of the State Council circulated the Advice on the Closing down of Small Thermal Power Unites on May 15, 1999	Good	Improve utilization efficiency of coal and the environmental quality, and the results were obvious.
43	State Commission of Economy and Trade issued the Implementation Program of China Green Lighting Project on Sep. 18, 1996 The State Commission of Economy and Trade, the Ministry of Construction and the State Technique Supervision Bureau issued the Advice on Promoting the China Green Lighting Project.	Fairly good	Save electric power, reduce environmental pollution, but the technological level needs to be increased.
44	The General Office of the State Council circulated the Advice on the Rectification of the Small Steel Mills.	Fairly good	Improve energy utilization efficiency, product quality and economic efficiency in steel industry, and energy saving effects and environmental effects were good. But the rectification needs to be strengthened.

(3) Energy saving economic policies

According to incomplete statistics, China promulgated and implemented 23 energy saving economic policies during the period between 1980 and 2000 (see Table 7-3). Among them, 15 items produced good results, 65 percent of all, 7 items fairly good results, 31 percent of all, 1 item poor results, 4 percent of all. The features are as follows: (1) energy saving investment policies of vigorously accelerated the energy saving development, but the withdrawal of preferential policies of energy saving investment had negative impacts on energy saving work; 2) preferential policies of credit produced fairly good results. After 1995, because the reform of national economic investment system was still under way, the credit preferences of energy saving remained to be studied and made; 3) preferential policies of tax stopped implementation around 1994; 4) energy saving-related loan policy accelerated the transformation of air-powered water pump and obviously improved the energy efficiency; 5) the scientific research funds for energy saving had good purposes and played certain roles in a certain period, but the number of research fees in the early stage of a project usually exceeded that decided in the bid, and thus the policies made by departments concerned hardly played the due roles.

Table 7-3 Assessment Results of Economic Policies of Energy Saving

NO	Contents	Results	Brief reasons
45	Commission of State Economy, the Ministry of Finance and the China Construction Bank issued the Provisional Regulations of the Credit for the Digging, Innovation and Transformation of the Industrial and Transportation Enterprises, NO. [1980] 454	Good	Reform the financing system, facilitate technological advancement in industrial enterprises and transportation enterprises, improve energy utilization efficiency, and protect environment.
46	The State Development and Planning Commission, the Commission of State Economy and the Bank of China issued the Notice on the Use of the Medium- and Short-term Credit by the Bank of China on April 11, 1981. The State Development and Planning Commission, the Bank of China and the China Construction Bank issued the Additional Regulations of the Use of the Credit of Energy Saving Capital Construction.	Good	Reform the investment system of energy saving projects, and accelerate the construction of energy saving projects.
47	The State Development and Planning Commission issued the Trial Measures of Payment Standards of the Feasibility Research Fees for the Energy Saving Projects on March 10, 1982 The State Development and Planning Commission and the China Construction Bank issued the Additional Notice on the Feasibility Research Fees for the Energy Saving Projects, NO. [1983] 366.	Fairly good	Promote the feasibility study of energy saving projects. But not all industries and regions carried out those measures and the results were not obvious.

48	The State Council issued the Report on the Special Tax for the Fuel Oil, the State Development and Planning Commission and the Ministry of Finance, NO. [1982] 66, April 22, 1982.	Fairly good	Help save oil. But hardly conform to market economy mechanism, implementation produces poor results, and the economic effects, energy effects and environmental effects were not obvious.
49	The State Development and Planning Commission, the Bank of China and the China Construction Bank issued the Additional Regulations of the Use of the Credit of Energy Saving Capital Construction, NO. [1983] 28, Jan. 11, 1983	Good	Reform the investment system of energy saving projects, and accelerate the construction of energy saving projects.
50	State Development and Planning Commission and the China Construction Bank issued the Additional Notice on the Feasibility Research Fees for the Energy Saving Projects, NO. [1983] 366.	Poor	Promote the feasibility study of energy saving projects. But not all industries and regions carried out those measures and the results were not obvious.
51	The State Council issued the Provisional Regulations of the Charge of the Construction Tax, NO. [1983] 147, Sep. 2, 1983.	Fairly good	Accelerate the construction of energy saving buildings, reduce energy consumption, improve the quality of environment, and be good to health.
52	The State Council circulated the Provisional Regulations of Promoting the Technological Advancement in the State-owned Enterprises of the Commission of State Economy, the Ministry of Finance and the Bank of China, NO. [1985] 21, Feb. 8, 1985	Good	Facilitate technological advancement and transformation, improve energy utilization efficiency, and accelerate the economic development.
53	The State Development and Planning Commission, the Ministry of Finance, the China Construction Bank issued the Additional Notice on the Exemption of Principal and Interest for the Small-sized Energy Saving Allocation-to-Credit Projects, NO. [1985] 562, April 13, 1985.	Good	Accelerate the construction of small-sized energy saving projects.
54	The Commission of State Economy issued the Notice on Discount of 300 Billion Yuan Energy Saving Credit, NO. [1985] 815, Aug. 1, 1985	Good	Accelerate the construction of energy saving projects, improve energy utilization efficiency, and be good to the environment.
55	The Ministry of Finance, Personnel Ministry and the Commission of State Economy issued the Methods of Adopting the Awards for the Raw Material and Fuel in the State-owned Industrial and Commercial Enterprises.	Fairly good	Facilitate technological advancement in the enterprises, facilitate the energy saving, and improve economic efficiency. But there was insufficient link with the entrepreneurial economic efficiency.
56	The Ministry of Finance issued the Notice on Taxes of Energy Saving Management on March 2, 1986	Good	Energy saving produce social efficacy and can be promoted by tax regulation.

57	The State Development and Planning Commission, the Agricultural Bank issued the Notice on Grand Credit to Support the Rural Energy Development, June 27, 1986.	Good	Reform the investment system of rural energy construction, improve energy utilization efficiency and protect rural ecological environment.
58	The State Development and Planning Commission, the Ministry of Finance, the China Construction Bank and the Bank of China issued the Regulations of the Adoption of the Difference Interest Rate of the China Construction Bank's Credit for Parts of the Industries, NO. [1986] 1258, July 14, 1986	Good	Accelerate the construction of energy saving projects and the development of energy saving industries.
59	The State Environmental Protection Committee, the State the Development and Planning Commission, the Commission of State Economy, the Ministry of Finance and the State Material Bureau issued the Provisional Regulations of the Development of Civil Coal, NO. 018, July 12, 1987	Good	Coal processing, as one of methods of clean utilization of coal, helps improve the utilization efficiency and reduce environmental pollution.
60	State Development and Planning Commission issued the Notice on the Regulation of the Scope and the Fixed Investment Quota of the Energy Saving Capital Construction, NO. [1991] 224	Fairly good	Facilitate the energy saving and raw material saving, improve energy utilization efficiency, accelerate economic development, and reduce environmental pollution. But the implementation needed to be strengthened.
61	The State Council issued the Provisional Regulations of the Investment Direction of the Fixed Assets of the P.R.C.	Good	Accelerate the construction of energy saving projects and the development of energy saving industries.
62	Tibet invested a large sum of money to develop the solar energy on Nov. 7, 1991.	Fairly good	Accelerate the development of Tibetan economy and increase the level of civil energy, but the cost was rather high.
63	The Ministry of Finance issued the Provisional Regulation of Energy Saving-related Loan for the Transformation of Air-powered Water Pump in the Coal Industry, NO. [1992] 102	Good	Accelerate the energy technological advancement, improve the energy utilization efficiency of air-powered water pump, and the energy saving results were obvious.
64	The Ministry of Finance issued the Notice on the Depreciable Life of the Transformation of Air-powered Water Pump, NO. [1995] 28	Good	Accelerate the energy technological advancement, improve the energy utilization efficiency of air-powered water pump, and the energy saving results were obvious.

65	The Ministry of Finance and the Taxation Bureau published the Notice on the Finance and Tax of the Promotion of Technological Advancement, April 7, 1996	Good	Facilitate technological advancement and improve the energy utilization efficiency in the enterprises. It was well implemented.
66	The General Office of the State Development and Planning Commission issued the Notice of the Energy Saving Capital Construction, NO. [1997] 782 号	Fairly good	Accelerate the construction of energy saving projects and the development of energy saving industries, but the interest rate was rather high.
67	The General Office of the State Council circulated the Provisional Regulations of the Start-up Funds of the Medium- and Small-sized Technological Enterprises	Good	Facilitate technological advancement, increase the technological level of medium- and small-sized enterprises, and improve energy utilization efficiency.

(4) Energy saving standards

According to incomplete statistics, China promulgated and implemented 7 energy saving standards during the period between 1980 and 2000 (see Table 7-4). Among them, 4 items produced good results, 57 percent of all, 2 items fairly good results, 29 percent of all, 1 item poor results, 14 percent of all. The assessment results show that, generally speaking, the implementation results of energy saving standards are good. The features are as follows: 1) since early 1980s, a series of energy saving standards were adopted one after another. Among them, Car Discard Standards and Energy Saving Architecture Design Standards have played an accelerating role in improving energy utilization efficiency of energy using appliances; 2) the implementation results of energy saving standards have been generally good. They are effective measures to promote energy saving under market economic system. However, it is far from perfection because there haven't formed systematic energy saving standards and the implementation of the existing energy saving standards still needs to be strengthened.

Table7-4 Assessment Results of Energy Saving Standards

NO	Contents	Results	Brief reasons
68	The Commission of State Economy, the State Standard Bureau circulated the Minute of Working Meeting of National Energy Standard in Paper NO. [1981] 224 on July 1, 1981	Fairly good	Accelerate the progress of national energy standardization.
69	State Development and Planning Commission issued the Notice on the Implementation of Energy Saving, Reasonable Utilization of Energy Resources and the Acceleration of the Revising the Design Standards on June 22, 1984	Poor	Lack of strict supervision and control, the implementation is poor, and there is nobody in charge after the cancellation of the industrial administration.
70	The Commission of State Economy issued the Provisional Regulations of Accelerating the Discard of the Old Cars, Sep. 17, 1986	Good	Facilitate technological advancement, improve energy utilization efficiency of cars, the standards are specific, and the implementation is good.

71	The Ministry of Construction, the State Development and Planning Commission, the State Commission of Economy and Trade and the State Taxation Bureau issued Energy Saving Standards of Architecture for Civil Use (heating and residence) Feb. 18, 1997	Fairly good	Promote the construction of energy saving architectures, save energy, reduce atmospheric pollution in the urban cities and be of long-term significance. But the implementation needs to be strengthened.
72	The State Commission of Economy and Trade, State Development and Planning Commission, the Department of Mechanics, the Public Security Bureau and the Environmental Protection Bureau issued the Standards of Discard Car, NO. [1997] 456, on July 15, 1997.	Good	Facilitate technological advancement, improve energy utilization efficiency of cars, t reduce atmospheric pollution in the urban cities, and the implementation is good.
73	The State Commission of Economy and Trade, the State Development and Planning Commission, the Public Security Bureau and the Environmental Protection Bureau issued the Standards of Standards of Light Truck, NO. [1998] 407, on July 7, 1998.	Good	Improve energy utilization efficiency of light trucks, reduce atmospheric pollution in the urban cities, and the implementation is good.
74	State Commission of Economy and Trade decided to set up and implement the energy efficiency identification system. Aug. 4, 2001	Fairly good	Promote energy saving products, save energy, but the implementation needs to be strengthened.

(5) Energy saving plans

According to incomplete statistics, China promulgated and implemented 8 energy saving plans during the period between 1980 and 2000 (see Table 7-5). Among them, 1 item produced good results, 12 percent of all, 7 items fairly good results, 88 percent of all. The features are as follows: (1) energy saving plan is of significance in a sense that they provide guidance to the energy efficiency improvement. The influence of market factors on energy saving should be paid more attention to; 2) energy saving plan must be transformed from directive plan into guiding plan. Therefore, it is of benefit to China's sustained social and economic development when we make an overall plan considering economic and social effects, energy effects and environmental effects.

Table7-5 Assessment Results of Energy Saving Plans

NO	Contents	Results	Brief reasons
75	The State Development and Planning Commission made the Sixth Five-Year Energy Saving Plan in 1980.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving and improve energy utilization efficiency. But the planning method needs to be informed and improved.
76	The Commission of State Economy issued the Advice on Strengthening the Rural Energy Construction, which was passed by the working meeting of the State Council and approved by the State Council.	Good	Improve energy utilization efficiency, improve the quality of life and protect ecological environment in rural areas.

77	The State Development and Planning Commission made the Seventh Five-Year Energy Saving Plan in 1985.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving and improve energy utilization efficiency. But the planning method needs to be informed and improved.
78	The State Development and Planning Commission made the Eighth Five-Year Energy Saving Plan in 1990.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving and improve energy utilization efficiency. But the planning method needs to be informed and improved.
79	The State Development and Planning Commission made the Ninth Five-Year Energy Saving Plan in 1995.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving and improve energy utilization efficiency. But the planning method needs to be informed and improved.
80	The State Commission of Economy and Trade made the Tenth Five-Year Energy Saving and Substitution for Fuel Oil Plan in 2000.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving. But the planning method needs to be informed and improved and the results were not obvious.
81	The State Commission of Economy and Trade made the Tenth Five-Year Energy Saving and Comprehensive Energy Utilization Plan in 2000.	Fairly good	Energy saving was brought in the national economy plan, government attached great importance to energy saving and improve energy utilization efficiency. But the planning method needs to be informed and improved.
82	China Chemical Energy Saving Association made the Tenth Five-Year Plan and the Energy Saving Plan in 2015 in the petrochemical industry in 2000.	Fairly good	Energy saving was brought into industry development plan to draw the attention of enterprises, facilitate the reasonable utilization of oil and gas resources, and improve energy utilization efficiency in petrochemical industry. But the planning method needs to be informed and improved.

(6) Policies in the development and promotion of energy saving technology

According to incomplete statistics, China promulgated and implemented 14 policies in the development and promotion of energy saving technology during the period between 1980 and 2000 (see Table 7-6). Among them, 4 items produced good results, 29 percent of all, 10 items fairly good results, 71 percent of all. The features are as follows: 1) the

implementation of policies in the development and promotion of energy saving technology is generally good, the approach of technological advancement must be adopted in energy saving works; 2) since 1990, the promotion of energy saving technology have been under government guidance of relevant department, in confrmity with the matket economy mechanism, and so the promotion have attained success; 3) the promotion of energy saving technology is a process. It is important to learn from foreign advanced experiences in order to avoid mistakes.

Table 7-6 Assessment Results of Policies in the Development and Promotion of Energy Saving Technology

NO	Contents	Results	Brief reasons
83	The Department of Mechanics, the Commission of National Economy issued the first energy saving products promotion projects on Sep. 23, 1982.	Fairly good	Promote the production of energy saving products and increase the energy saving technological level. But the planning method needs to be informed and improved.
84	The State Council circulated Provisional Regulations of Accelerating the State-owned Enterprises' Technology Advancement circulated Commission of State Economy, the Ministry of Finance, the Bank of China	Good	Facilitate technological advancement in state-owned enterprises, and improve economic effects and energy utilization efficiency.
85	The State Council published the twelve major policy points in the energy field in May, 1986.	Fairly good	Facilitate technological advancement, and improve energy utilization efficiency. But the implementation needs to be strengthened.
86	The Commission of State Economy and the State Development and Planning Commission issued the Notice on the Promotion of 33 Energy Saving Techniques, NO. [1987] 225, April 1, 1987.	Fairly good	Facilitate technological advancement, and improve energy utilization efficiency. But the implementation needs to be strengthened.

87	The State Council issued the Notice on the Promotion of the absorption and nationalization of the introduced technology Nov. 12, 1987	Fairly good	Facilitate technological advancement, and improve energy utilization efficiency. But the implementation needs to be strengthened.
88	State Development and Planning Commission issued the paper NO. 974, which ask for the promotion of 48 techniques of energy saving, material saving and the comprehensive utilization of resources, March, 1988	Fairly good	Facilitate technological advancement, and improve energy utilization efficiency. But the implementation needs to be strengthened.
89	State Development and Planning Commission issued the Regulations of Special Planning of Technological Transformation in the Eighth Five-Year Plan period	Fairly good	Promote energy saving in an all around way. The special energy saving transformation project was well carried out.
90	State Commission of Economy and Trade issued the Advice on the Acceleration of the energy saving transformation of air-powered blower and water pump on Dec. 21, 1994.	Good	Promote in an all-around way the technological development, accelerate the technological transformation of air-blower and water pump, and improve energy utilization efficiency.
91	The State Commission of Economy and Trade, the Department of Mechanics issued the Roster of Recommended Energy Saving Products of Air-powered blower and water pump on Feb. 26, 1996.	Good	Promote in an all-around way the technological development, accelerate the technological transformation of air-blower and water pump, and improve energy utilization efficiency.
92	The State Development and Planning Commission and the State Commission of Economy and Trade issued the Outline of Energy Saving Technology of China on May 13, 1996.	Fairly good	Promote in an all-around way the energy saving technological development in the whole country. But the implementation needs to be strengthened.

93	The State Commission of Economy and Trade、State Development and Planning Commission issued the Notice on the Promotion of the Major energy saving technological achievements in the Ninth Five-Year period on Sep. 23, 1996	Fairly good	Promote in an all-around way the technological development, accelerate the technological transformation, and improve energy utilization efficiency. But the implementation needs to be strengthened.
94	The Department of Mechanics and the State Development and Planning Commission published the seventeenth promotion projects of energy saving mechanical and electronic products and the sixteenth elimination projects of energy saving mechanical and electronic products on Sep. 26, 1996	Good	Promote the production of energy saving products and increase the energy saving technological level, and save energy. But the implementation needs to be strengthened.
95	The Department of Mechanics and the State Development and Planning Commission published the eighteenth promotion projects of energy saving mechanical and electronic products and the seventeenth elimination projects of energy saving mechanical and electronic products on March 12, 1998.	Fairly good	Promote energy saving mechanical products, accelerate the production of energy saving products, increase the energy saving technological level, and save energy. But the implementation needs to be strengthened.
96	With the ratification of the State Council, the State Commission of Economy and Trade, the State Commission of Economy and Trade published the list of drawback capacity, technology and products that need to be eliminated. Jan. 12, 1999	Fairly good	Promote the production and technological advancement of energy saving products; increase the energy saving technological level; save energy. But the implementation needs to be strengthened.

(7) Analysis of overall assessment results of energy saving policies

Based on assessment results, overall assessment results of energy saving policies as well as the reasons are listed in the appendix, “Overall Assessment of Major Energy Saving Policies”. We list the statistics in the Table 7-7 for convinience. From the data in the appendix, we can draw conclusions as follows:

1) Energy saving policies that produce good results accounted for 48%, those produces fairly good results account for 45%. Generally speaking, the policies are well implemented.

2) Energy saving plans and energy saving technological promotion produce good results. The rate of success is high. There are basically no mistakes.

3) The implementation of energy saving rules and regulations, energy saving economic policies and energy saving standards that produce good and fairly good results accounts for 96%.

4) The implementation of energy saving administrative regulations produce not so good results. Those who produce good and fairly good results only account for 82%.

Table 7-7 Statistics of Assessment Results of Energy Saving Policies

	Assessment results			
	Sub-total	Good	Fairly good	Poor
1、energy saving rules and regulations	22	11	10	1
（%）	100	50	46	4
2、administrative measures of energy saving	22	11	7	4
（%）	100	50	32	18
3、economic policies of energy saving	23	15	7	1
（%）	100	65	31	4
4、energy saving standards	7	4	2	1
（%）	100	57	29	14
5、energy saving plans	8	1	7	0
（%）	100	12	88	0
6、development and promotion of energy saving technology	14	4	10	0
（%）	100	29	71	0
Total	96	46	43	7
（%）	100	48	45	7

4. Cause Analysis of Implementation Results of Energy Saving Policies

(1) Analysis of Reasons Why Energy Saving Policies Produce Good Results

Main reasons are as follows: 1) the government and the Party attach great importance to energy saving; 2) reform of market economy system; 3) reform of administrative system; 4) administration of energy saving is strengthened; 5) promotion, education and training of energy saving are stepped up; 6) make great efforts at energy saving research and foreign cooperation.

(2). Analysis of Reasons Why Energy Saving Policies Produce Poor Results

Main reasons are as follows: 1) extensive economic growth makes energy saving works at the subordinate place; 2) the energy saving works haven’t been brought into legal system; 3) administration of energy saving is weakened in some aspects; 4) the implementation is influenced by the planed economic system; 5) the process of energy saving standardization is lagged behind; 6) there are difficulties in accession of energy

saving service into market.

5. Successful Experiences and Lessons of the Making and Enforcement of Energy Saving Policies in China

The follows are main lessons: (1) energy saving policies should serve the sustained economic and social development, with the main purpose of the improvement of the economic effects in energy utilization; (2) energy saving policies must conform to the development of market economy; (3) energy saving policies should be closely linked with environmental protection; (4) energy saving policies should be of benefit to the energy safety; (5) the legal system of energy saving need improvement, and the works of energy saving should be brought into the legal system in a step-by-step manner; (6) the energy saving administration should be strengthened;（7）energy saving policies should be continuously improved.

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