

China's "11th Five-Year Guidelines" with a Focus on Energy Policy

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Introduction

Between March 5 and 14, 2006, China held its fourth conference of the 10th National People's Congress¹, which culminated in the publication of the "11th Five-Year Guidelines on the National Economy and Social Development (2006-2010)" (from hereon referred to as "11th Five-Year Guidelines") on March 14. The 11th Five-Year Guidelines sets out those factors that will be the most influential in shaping China's social and economic development over the next five years.

This report will briefly overview the essential elements/characteristics of the 11th Five-Year Guidelines, with a particular focus on energy related policies.

1. Essential Elements of the 11th Five-Year Guidelines

(a) The name of "Five-Year Guidelines" has been used this time rather than the previously called "Five-Year Plan" to further emphasize the transition of China from a planned economy to a socialist market economy. The impetus behind this change is to weaken the plan's association with the original five-year plan introduced during the time of the planned economy. This change can be considered part of a larger trend, which saw the key policy formulation organization the "National Development and Planning Commission" change its name to the "National Development and Reform Commission" back in 2003.

This has basically brought about a de-coupling of "government" and "market" functions in which the government is responsible for overseeing policy and market conditions from a macro perspective. In contrast, resource allocation is expected to be undertaken by the market.

(b) As in the previous five-year plan, the numerical indices have shown a gradual improvement with this year's guidelines also showing a similar trend. These indices are further separated into two broad categories, namely those that are "anticipated" and those that are "obligatory".

¹ The National People's Congress is China's equivalent to Parliament

Those of an “anticipated” nature are the target rate of economic growth, etc. with macro-controls capitalizing on market functions to reach numerical targets. “Obligatory” indices refer to those targets that the government and industry have an obligation under the law or regulation to reach, and include energy conservation, environment at protection and improvement in public service standards.

(c) Although this year’s 11th Five-Year Guidelines are substantially more voluminous than previous plans consisting of over 90 pages, the achievement of some targets set out within the 10th Five-Year Plan and the addition of specific sectional demarcations are also included, which makes it easier to follow than previous plans.

2. Outline of the “11th Five-Year Guidelines”

Overall, the Chinese government has demonstrated a commitment to stabilization of economic growth, the promotion of economic reform and openness and the development of a well-balanced society. Attention has also been given to (i) development of a new socialistic agricultural community; (ii) acceleration in adjustment of economic structure and shifting of growth patterns; (iii) the promotion of a balanced level of development between regions; (iv) strengthen self-innovation and increase the ability to create new products; (v) new strengthening of reform and a furthering of liberalization; and finally, (vi) the development of a well-balanced society.

In terms of the economy and population, GDP is projected to grow at an average of 7.5% annually over the next five years to reach 26.1 trillion yuan (approximately 3.2 trillion U.S. dollars) in year 2010. With a projected population of 1.36 billion, GDP per capita is expected to be over 2,400 U.S. dollars.

In terms of economic structure and growth patterns, the tertiary sector (service sector) will be developed and a shift will be made from an export-oriented economy to one that develops as a result of changes in domestic demand. The targets for the next five years are service sector to assume a share of 43.3% of the economy, urbanization rate to reach 47% and to increase research related funding to 2% of GDP to promote greater innovation with the economy.

In the pursuit of creating a more well-balanced society, the guidelines seek to promote a sustainable balance between economic growth, resource preservation and environmental protection; harmony between urban and rural societies; and a harmony between regions and districts. Therefore, this year’s 11th Five-Year Guidelines set out to decrease energy consumption by 20% through to 2010 from 2005 levels; reduce emissions of major pollutants by 10% through to 2010; cut industrial water consumption per unit increase in production by 30%; and increase the land area of forests up to 20%.

During 2006, the first year of the 11th Five-Year Guidelines, the rate of economic growth is projected to be 8% and a target 4% reduction in energy intensity has been established.

3. An Outline of Policies Related to Energy and Environment in the 11th Five-Year Guidelines²

(1) Energy Policy

In general, the following initiatives have been established as the central tenants of energy policy: place priority on energy conservation; to be based on energy supply; primary reliance on coal; the diversification of energy sources; optimization of the demand and supply structure; and the development of a stable, economic, clean and safe energy procurement structure. Each of these categories is discussed in further detail below.

• Coal – “Development with Order”

Pursue logical and reasoned development; improve recovery and extraction rates; and strengthen the commitment to reduce the impact of coal mining operators on the environment. Additionally, the development of large-scale coalmines, promotion of mergers and reorganization of the coal industry, and the creation of some coal companies with coal production capacity of 100 million ton/year is sought. Encourage the access of coal companies into the electric power business and support the coordinated management of coal, electric and transport activities. Carry out the coordination, reform and reorganization of small and medium-sized mines and the closure of those operations that do not meet production safety standards and/or contribute to the destruction of the environment.

Prevention of accidents related to mine gas and improve safety management. Speed up the development and use of coal bed methane. Improve the production and use of clean coal and promote cleansing and selection of coal and the use of low-grade coal for electricity generation. Develop and standardize technologies for the high efficient and clean burning of coal that reduces pollution. In order to develop a liquefied coal based fuel, develop ‘coal to liquid’ model projects in a timely manner, promote the development of a coal-based chemical industry as well as improve coal processing and conversion technologies.

• Electricity – “Aggressive Development”

² Under the title “Diversification and Optimization of the Energy Structure”, Section 3 of the guidelines is dedicated to energy policy. Within this section Chapter 12 lays out the “Optimum Form of Development of the Energy Sector”. Items dealing with implementation of policies and initiatives to improve energy efficiency, the conservation of resources and the improvement of integrated consumption are stressed in Chapter 22 “Promotion of a Recycling Economy”, which is included in Section 6 under the heading of “Constructing an Environment Friendly and Resource Conservationist Society.”

Optimize the progress of thermal power generation through the development of high efficiency and environmentally friendly large-scale electric power plants. Build large-scale super critical power plants as well as air-cooled power plants³. Promote the clean coal based electricity generation and construct plants that are capable of producing 600,000 kW of electricity from circulating fluidized beds at a single unit, and launch gas based combined cycle electric generation projects. Support electric generation at locations near producing wells and construct large-scale coal based thermal power generation bases. Moderately develop natural gas power generation and eliminate small-scale outdated thermoelectric power plants.

Hydroelectric generation will only be developed on the proviso that these are limited detrimental protection of the effects on the affected ecosystem. Strengthen policies that help respond to migration, management of the environment as well as prevention of floods and droughts. Utilize the Jinsha River, Yalong River, Lancang River and Yellow River as sources for hydroelectric generation and establish large-scale hydroelectric power stations at Xiluodu and Xiangjiaba, while also developing a number of pumped storage hydroelectric plants.

Aggressively promote nuclear power generation through the construction of 1 million kW class reactors and through the domestic design, manufacture, construction and operation of Advanced Pressurized Water Reactor (APWR) nuclear power plants. Strengthen the prospecting, procurement and development of uranium resources domestically, improve processing technologies and further develop nuclear power technologies while enhancing the training/education of human resources in the nuclear energy field.

Strengthen the building of the power grid. Construct three electricity transmission routes that send electricity from the west of the country to the east and build electricity distribution/subtractions networks that supply rural areas. Continue to promote the development of West-East, South-North and nation-wide power grid. In addition to strengthening the construction of power grid at the rural and province level, develop power distribution/transmission networks while building and consolidating power grid in urban and rural regions. Through these measures, the transmission/distribution networks in both rural and urban areas will be strengthened, which overall will expand the supply area of electricity and secure security of electricity supply.

• **Oil and Natural Gas – “Accelerated Development”**

Expand and improve the exploration of oil and natural gas resources. Strengthen the exploration and evaluation of oil and natural gas resources. Expand exploration area and intensively exploit offshore areas, major oil/gas basins and new onshore oil/gas areas. Promote the exploration and research of coal bed methane gas, oil shale, oil sands, as

³ A station that is equipped with a generating unit that utilizes air to cool the turbine generator.

well as methane hydrate and other non-conventional types of oil/gas resources and promote diversification of exploration/development companies.

Stabilize the increase in crude oil production and implement approaches to increase the production of natural gas at the same time. Carry out maintenance/modification of aging oil fields to gain stable production and slow down the rate of production decreases. Advance oil and gas development rate in areas such as the deep sea, Tarim, Jungal, Ordos, Tsaidam and the Sichuan basins. Widen exploitation and cooperation in overseas oil and gas areas. Firmly maintain equal cooperation and mutual benefits and profit, and establish import LNG projects along the coast in a timely manner. Expand and construct the national strategic petroleum reserves.

Advance the planning and construction of main oil and gas pipelines and complete a national oil and gas pipeline network. Set up the West-East petroleum pipeline that delivers oil from the west to the east and the South-North petroleum pipeline that delivers oil from the north to the south where possible construct onshore oil and gas pipelines, and a second West-East gas pipeline that will deliver gas from the west to the east.

Refineries plans will be that enacted that focus on the creation of “large integrated bases” at set location around the country. In areas where consumption of petroleum products is concentrated, refinery capability will be expanded at an appropriate pace centering on the expansion of refining capacities. In areas where there is no oil refinery but a high consumption of petroleum products, construction of new refineries will be planned in a rational manner. In areas where petroleum refinery capacity is relatively redundant, the size of refining activities will be constrained, and less efficient smaller refineries will be closed.

- **Renewable Energy – “Develop Greatly”**

Promote and support renewable energy production and consumption through favorable fiscal policies, tax structures, investment policies and a compulsory market share for renewable energy. Increase the percentage of renewable energy use in the primary energy mix. Greatly enhance wind power generation by the construction of thirdly 100,000 kW class wind farms. The construction of 1million kW class wind farms in Inner Mongolia, Hebei, Jiangsu and Gansu, etc.

Greatly increase the production of biomass energy, increase the supply of electricity from the burning of municipal solid waste and agricultural waste through the construction of power plants to burn these fuels. Expand the production of solid biomass, bio-ethanol and bio-diesel. Target of achieving 5 million kW of grid inter-connected wind power and 5.5 million kW of grid inter-connected electricity from biomass combustion. In addition,

actively promote the use and production of solar energy, geothermal energy and ocean power generation.

(2) Constructing a Resource and Environmentally Friendly Society

In order to create a resource and environmentally friendly society, the rate of energy inputs must be low and production outputs must be high, and must consist of an economic structure in which inefficient consumption of energy resources and energy consumption, while preservation of the environment and sustainable development are exemplified. A variety of recycling-oriented, environmentally sustainable industrial models and “model enterprises” need to be created for industries such as steel, nonferrous metal, coal, electricity, oil, construction materials and sugar refining, etc.

• Energy Conservation

Strengthen policies that enhance energy conservation and energy efficiency, to strengthen heighten and promote the effectiveness of energy conservation. Achieve energy conservation through restructuring the industrial section and by reducing energy intensive industries, investing in new technologies and promoting its use, and through structural measures to improve the management and standardization of energy production, distribution and consumption.

Emphasize energy efficiency particularly in energy intensive industries and enterprises such as steel, nonferrous metals, coal, electricity, oil and construction materials, etc. Improve the mileage of fuel consumption cars and eliminate old transportation infrastructure. Set standards for liquid fuels that substitute for petroleum and actively promote its production.

The 11th Five-Year Guidelines established the following ten energy conservation priority projects. (1) Improve low efficiency coal boiler facilities; (2) regional co-generation; (3) effective use of residual heat; (4) the conservation and substitution of fossil fuels; (5) energy conservation of electromechanical system; (6) improvement of the overall energy system; (7) energy conservation in construction; (8) green energy efficient illumination; (9) energy efficiency at government offices; (10) measurement and overseeing of energy conservation measures, and formulation of technical services to achieve this.

• Initiatives and Policies to Advance Energy Conservation

Establish laws for recycling-oriented economy for efficient resource allocation in the economy. For the indicator consumption per 10,000 Yuan of GDP, each entity will be assigned responsibility and the achievement of targets will be investigated. Complete the drafting of entry criteria for energy and water consumption of energy intensive industries, energy consumption criteria for energy intensive products and buildings, and energy conservation guidelines and water intake criteria for energy intensive industries.

Strictly prohibit energy and water intensive production processes, technologies and equipment. Implement strict energy efficiency standards and approval procedures of energy conservation products. Widen and strengthen the management of electricity users and purchase of energy conservation products by the government, and reinforce ESCO. Improve the budget, tax initiatives, pricing policies, and investment policies that promote natural resource conservation, comprehensive use and development of oil substitutes. Impress a strong sense of “crisis” regarding society’s impact on natural resources to promote conservation.

(3) Others

- **Use and Development of Marine and Renewable Resources**

Promote the exploration and development of exclusive economic zone, continental shelf, and international offshore resources and utilize renewable energy resources such as solar and wind power.

- **Reforming Monopolistic Industries**

Promote reform of the power industry by strengthening the separation of power generation from transmission, and the separation of power distribution and transmission, promoting the formulation of regional power markets. Support the reform of the oil and postal industries. Reform state-owned enterprises, and create a competitive market with the ultimate objective of building a modern industrial base.

- **Key Areas Targeted for Funding by the Central Government**

The main areas of the central government’s fund to support resource based and environment issues include, exploration for energy resources and other key mineral resources; preservation and recovery of the environment; conservation of energy, water and efficient land use as well as the establishment of a recycling-oriented economy model that utilize/allocate resources sustainability. Also, in support of innovative technology development and for energy conservation research and development, as well as its dissemination and market consolidation, the government will also provide financial support to reserve strategic resources, to assist in the development of renewable energy resources and municipal solid waste processing, etc.

4. “11th 5-Year Guideline versus Other Related Guidelines and Plans

The energy policies defined in the 11th Five-Year Guidelines are likely to give a significant impact on China’s future energy trends; however, some policies in the 11th Five-Year Guidelines have already been incorporated into related policies and regulations already established in the energy field.

In principle, the policies and projects regarding energy conservation are almost equivalent to the “Ten Energy Conservation Priority Projects” announced in 2005 in relation to the “Medium and Long-Term Energy Conservation Plan” released in 2004. In 2005, the central government’s Council on “The Establishment of an Energy Conservation Society” announced policies toward developing an energy conservation society and a recycling-oriented economy.

Moreover, the “National Medium and Long-Term Science and Technology Development Plan Outline”, which was issued at the end of February 2006 immediately before the National People’s Congress was held, incorporated development plans on focused areas with priorities put on the development of energy and water resource conservation and environmental protection technologies. The plans included: energy conservation in manufacturing industries; clean and highly efficient development and use of coal and its liquefaction and multi-faceted use; exploration, development and use of oil and natural gas resources in complicated geological formations; low-cost and large-scale development and use of renewable energy; securing safety of large-scale power grid; comprehensive water conservation, resource exploration; increasing volume of proved reserve; and observation and countermeasures for global-scale changes in environment.

Policies on structural reforms in the energy industry were indicated in the Interim Regulation and the “Guiding Catalogue for Adjustment of Industrial Structure” released at the end of December last year. The Interim Regulation has classified a variety of industries into three categories of “encouraged”, “restricted,” and “to-be-eliminated.” Regarding the energy industry, these categories have 47, 6 and 18 items depicted respectively. Among the “encouraged” are exploration and development of natural gas hydrates, construction of supercritical and ultra-supercritical power plants with a single unit output of at least 600,000 kW. On the other hand, policies include “restrictions” on mining business with coal mines failing to reach the established standards in size, and on ordinary coal-fired thermal power plants with a single unit output of 300,000kW or less (except for those in small-scale power grid in Tibet and other areas). The “to-be-eliminated” category included oil refineries with annual production capacity of 1 million tons or less among others. The Interim Regulation and the Guiding Catalogue may be used as a reference for studying future investment plans, project approvals and taxation systems.

Furthermore, the 11th Five-Year Guidelines include new objectives and policies that target energy consumption per unit of GDP. The target is to reduce unit consumption by 20% compared with the 2005 level. However, the guidelines do not incorporate all of the detailed energy policies, rather, the 11th Five-Year Guidelines can be understood to provide a comprehensive picture of the energy industry in China that extracts and focuses on the plans and policies for each individual energy sector.

5. Achievement Status of the “10th Five-Year Plan”

In the past, the objectives of the five-year plan often conflicted with the results of actual performance. There were frequently cases where the objectives in the five-year plan were not achieved, formulated policies were not abided by, actual results were well above those projected, and the supply balance was noticeably changed during the planned period. In regards to the objectives in the previous “10th Five-Year Plan (2001-2005)” that was announced in 2001, not all of them have been accomplished. The objectives and actual results are compiled in the table below (see Table 1).

Table 1 Achievement Status of Part of Objectives in the 10th Five-Year Plan

Item	Achievement Situation	Objectives or Predicted Value In the 10 th Five-Year Plan	Actual Results in 2005 or during the Last Five Years
Economy/Society Synthesis			
Total Amount of GDP (Average increase rate in five years)	◎	12,500 billion yuan (around 7%)	18,200 billion yuan (9.5%)
GDP Industrial Composition	○	13% : 51% : 36%	12.4% : 47.3% : 40.3%
Total Population (Average increase rate in five years)	○	Within 1.33 billion (9%)	1.30756 billion (6.3%)
GDP Per Capita	◎	9,400 yuan	13,920 yuan
Total Amount of Export and Import	◎	US\$ 680 billion	US\$ 1,422.1 billion
Research Costs	×	1.5% and more	1.3%
High School Enrollment Ratio	×	60%	52%
Total Emission of Primary Contamination	×	10% decrease	<10%
Energy			
Amount of production of primary energy	◎	1.32 billion tons of coal equivalent	2.06 billion tons of coal equivalent
Coals	◎	1.17 billion tons	2.19 billion tons
Petroleum	○	0.17 billion tons and more	0.181 billion tons
Overseas interest crude oil	○	15~25 million tons	17.5 million tons (2004)
Natural gas	○	50 billion m ³ and more	50 billion m ³
Predicted value of oil consumption	◎	0.245 billion tons affected	About 0.353 billion tons
Predicted value of natural gas	×	60~70 billion m ³	47.5 billion m ³
Coal consumption volume per 1kWh	○	380g and less	374g
Capacity of power generation unit	◎	0.37 billion kW	0.51 billion kW
Hydraulic power	◎	95 million kW	116.5 million kW
Thermal power	◎	286 million kW	384 million kW
Nuclear power	×	8.7 million kW	6.84 million kW
Major unit of 30,000 kW and more	×	50%	42%
Annual production of electricity	◎	1.73 trillion kWh	2.48 trillion kWh
Energy consumed per 10,000 yuan of GDP (equivalent in coal)	×	15-17% decrease compared to 1.40 tons in 2000	1.43 tons*
National strategy oil stock ability	×	8 million m ³	About 0.6 million m ³
National strategy crude oil reserve	×	6 million tons (net import volume for 30 days)	0

◎: Case where actual results remarkably surpassed the targeted value/predicted value ○: Case where the goal was achieved

×: Case where the goal was not achieved

* 1.40, 1.42, 1.5 and 1.43 tons equivalent in coal for 2001, 2002, 2003 and 2004 respectively.

Sources: “10th Five-Year Plan” and “10th Five-Year Plan of Energy Industry, “2005 National Society/Economy Statistics Publication” (quick estimation) by National Statistics Bureau of China, “Energy Statistics Yearbook of China,” etc.

Various factors in each energy field can be cited as the main reasons behind whether these goals were attained (not attained). However, a significant factor is thought to be that the energy policy in the 10th Five-Year Plan was formulated on a continuation of the 9th Five-Year Plan, which was on the basis of deflation in the economy, excessive supply, recession in the coal market, stability of the global oil market and the growth rate of construction of electric power capacity exceeding the growth rate of power consumption. In other words, it is deemed that as a result of the underlying assumptions used at that time, the growth in energy demand during the 10th Five-Year Plan period starting from 2001 was projected to be low.

Meanwhile, the Hu Jintao administration that started in 2002 tried to have a better record through economic pursuit and a great deal of fixed capital investment was conducted. As a result, the growth rate of investment in 2003 reached 27.7% year on year (the highest level in the last five years) and the energy consumption in industry, raw materials, construction and other industries exceeded the estimate by a large amount.

In addition, during the 10th Five-Year Plan period, the growth rate of power consumption supported by economic development surpassed the growth rate of electric power capacity construction and the issue of restricted electric power supplies arose. To cope with this, investment in electric power facilities was expanded extensively and the capacity of electric power facilities reached 510 million kW at the end of 2005, which greatly surpassed the 370 million kW forecast in the 10th Five-Year Plan.

However, as a result of unexpected factors including the sharp rise in global oil prices since 2004, the above-mentioned scenario is deemed to have gotten off track. For example, the construction of the national strategic petroleum reserves and purchase/storage of crude oil have been carried over to 2006 or later due in part to high-price of crude oil under the current market condition.

In addition, when looking at the goals and actual results in regard to the “energy consumed per 10,000 yuan of GDP” during the 10th Five-Year Plan period, the target was to reduce consumption by 15~17% from 1.4 ton; however, the actual value achieved was 1.43 ton/10,000 RMB which was significantly higher. To this end, it is thought that the 20% reduction outlined in the 11th Five-Year Guidelines is very optimistic and achieving this goal could be very difficult. It is important to note that over the past five years, the base unit has increased rather than reduce by 15~17% that was projected, thus the 20% target seems to be overly optimistic. It is the view of analysts that this 20% reduction is a politically motivated target and its actual realization will be extremely difficult.

Conclusion

The energy policy in the 11th Five-Year Guidelines, which was created against the backdrop of a sharp rise in global oil/LNG prices, lack of electric power for four consecutive years, restricted demand for/skyrocketing coal prices in China, a tight energy supply balance and a concerted push to acquire energy resources overseas has received considerable attention from the international community.

Within China, as a result of the transition to a market economy, wider use of market mechanisms have been proposed. In addition, China's dependence on imports of oil, natural gas has increased dramatically, meaning that energy demand and supply has become increasingly connected with the global energy market. Under these circumstances where various factors interact with each other, it is highly likely that energy demand and supply will not be simply what the Chinese government has assumed. Consequently, it is regarded that the setting and fulfillment of goals are becoming more difficult than ever before.

Up until the 10th Five-Year Plan, with the announcement of the "Five-Year Plan for National Society and Economic Development", most industries and respective regions (provinces/cities) also released their own five-year plans; however, this time, it is unclear if the guidelines of the energy industry will be announced as before. Additionally, the "Medium and Long-Term Guidelines for Energy in China" that was once proposed as a draft in 2004 is currently being studied and no details have been announced yet. It will be necessary to continually pay attention to the future direction of the policy of and demand and supply of energy in China.

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