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Notice of the General Office of the State Council on Issuing the  
Energy Development Strategic  
Action Plan (2014-2020)  
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The people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government, all ministries and commissions of the State Council, and all agencies directly under the State Council: The

"Energy Development Strategic Action Plan (2014-2020)" has been approved by the State Council and is hereby issued to you. Please implement it conscientiously.

General

Office of the State Council

June 7,

2014

(This article has been deleted and some expressions have been adjusted)

Energy Development Strategic Action Plan (2014-2020)

Energy is the foundation and driving force of modernization. Energy supply and security are related to the overall situation of my country's modernization drive. Since the new century, my country has made remarkable achievements in energy development, with steady growth in supply capacity, continuous optimization of

energy structure, achievements in energy conservation and emission reduction, new steps in scientific and technological progress, new breakthroughs in international cooperation, and the establishment of the world's largest energy supply system, effectively ensuring Sustainable economic and social development.

At present, the world's political and economic landscape is undergoing profound adjustments, and the energy supply and demand relationship is undergoing profound changes. my country's energy resource constraints are increasingly intensifying, ecological and environmental problems are prominent, the pressure to adjust structure, improve energy efficiency and ensure energy security has further increased, and energy development is facing a series of new problems and challenges. At the same time, my country has great potential for the development of renewable energy, unconventional oil and gas, and deep-sea oil and gas resources. New breakthroughs have been made in energy science and technology innovation, and international energy cooperation continues to deepen. Energy development is facing rare opportunities.

From now to 2020, it is a critical period for our country to build a moderately prosperous society in an all-round way and an important strategic opportunity period for the transformation of energy development. In order to implement the spirit of the 18th National Congress of the Communist Party of China, promote the energy production and consumption revolution, and create an upgraded version of China's energy, we must strengthen overall planning, clarify the overall strategy and action plan for my country's energy development in the coming period, and promote the innovative development, safe development, and Scientific development, this action plan is specially formulated.

## 1. Overall strategy

### (1) Guiding ideology.

Hold high the great banner of socialism with Chinese characteristics, be guided by Deng Xiaoping Theory, the important thought of "Three Represents" and the Scientific Outlook on Development, thoroughly implement the spirit of the 18th National Congress of the Communist Party of China and the Second and Third Plenary Sessions of the 18th Central Committee of the Communist Party of China, and fully implement the spirit of the Party Central Committee, The State Council's various decisions and deployments focus on increasing revenue, cutting expenditure, and reducing emissions, ensuring safe energy supply, transforming energy development methods, adjusting and optimizing the energy structure, innovating energy systems and mechanisms, striving to improve energy efficiency, and strictly controlling excessive growth in energy consumption. , focus on developing clean energy, promote green energy development, strive to promote scientific and technological progress, effectively improve the core competitiveness of the energy industry, create an upgraded version of China's energy, and provide safe and reliable energy guarantee for realizing the Chinese dream of the great rejuvenation of the Chinese nation.

### (2) Strategic principles and goals.

Adhere to the strategic policy of "conservation, cleanness and safety" and accelerate the construction of a clean, efficient, safe and sustainable modern energy system. Focus on implementing four major strategies:

1. **Saving priority strategy.** Give priority to conservation throughout the entire process of economic, social and energy development,

develop energy intensively and efficiently, use energy scientifically and rationally, vigorously improve energy efficiency, accelerate the adjustment and optimization of the economic structure, promote energy conservation in key areas and key links, and reasonably control total energy consumption , supporting rapid economic and social development with less energy consumption.

By 2020, total primary energy consumption will be controlled at around 4.8 billion tons of standard coal, and total coal consumption will be controlled at around 4.2 billion tons.

**2. Based on domestic strategy.** We should insist on being based on domestic supply, use domestic supply as the main channel to ensure energy security, and firmly grasp the initiative on energy security. Give full play to the advantages of domestic resources, technology, equipment and talents, strengthen the exploration and development of domestic energy resources, improve the energy substitution and reserve emergency system, and strive to enhance energy supply capabilities. Strengthen international cooperation, improve the level of high-quality energy security, accelerate the construction of strategic oil and gas import channels, and maintain energy security in an open pattern.

By 2020, a relatively complete energy security system will be basically formed. The total domestic primary energy production has reached 4.2 billion tons of standard coal, the energy self-sufficiency capacity has remained at around 85%, the oil storage-to-production ratio has increased to 14-15, and the energy reserve emergency system has been basically completed.

**3. Green and low-carbon strategy.** Efforts should be made to optimize the energy structure and the development of clean and low-carbon

energy should be the main direction of adjusting the energy structure. Adhere to the development of efficient and clean utilization of non-fossil energy and fossil energy simultaneously, gradually reduce the proportion of coal consumption, increase the proportion of natural gas consumption, significantly increase the proportion of wind power, solar energy, geothermal energy and other renewable energy and nuclear power consumption, and form a scientific and reasonable Improve the energy consumption structure, significantly reduce energy consumption emissions, and promote the construction of ecological civilization.

By 2020, non-fossil energy will account for 15% of primary energy consumption, natural gas will account for more than 10%, and coal consumption will be controlled within 62%.

**4. Innovation-driven strategy.** Deepen the reform of the energy system, accelerate the pace of reform in key areas and key links, improve the system and mechanism for scientific energy development, and give full play to the decisive role of the market in the allocation of energy resources. Establish the concept that science and technology determine the future of energy and science and technology create future energy, insist on equal emphasis on catching up and leapfrogging, strengthen the construction of the energy science and technology innovation system, rely on major projects to promote independent innovation in science and technology, build a strong country in energy science and technology, and the overall energy science and technology is close to the world's advanced level.

By 2020, a unified, open, competitive and orderly modern energy market system will be basically formed.

## 2. Main tasks

**(1) Enhance energy independent guarantee capabilities.**

Based on the domestic market, we will strengthen the construction of energy supply capacity and continuously improve the ability to independently control energy dependence on foreign countries.

**1. Promote the clean and efficient development and utilization of coal.**

In accordance with the principles of safety, green, intensive and efficient, we will accelerate the development of clean coal development and utilization technologies and continuously improve the level of clean and efficient development and utilization of coal.

**Develop coal-fired power cleanly and efficiently.** Transform the way coal is used and strive to increase the proportion of concentrated and efficient coal power generation. Improve the access standards for coal-fired power units. The coal consumption of newly-built coal-fired power units will be less than 300 grams of standard coal per kilowatt-hour, and the pollutant emissions will be close to the emission levels of gas-fired units.

**Promote the construction of large channels for large coal and electricity bases.** Based on the regional water resources distribution characteristics and ecological environment carrying capacity, we will strictly enforce coal mine environmental protection and safety access standards, promote green mining technologies such as filling and water conservation, and focus on the construction of northern Shanxi, central Shanxi, eastern Shanxi, Shendong, northern Shaanxi, Huanglong, and There are 14 large-scale coal bases with a capacity of 100 million tons in Ningdong, Shandong, Lianghuai, Yunnan-Guizhou, Jizhong, Henan, eastern Inner Mongolia, and Xinjiang. By 2020, the base's output will account for 95% of

the country's total. The most advanced energy-saving, water-saving and environmentally friendly power generation technology will be used to focus on the construction of 9 large-scale coal-fired power bases with a capacity of 10 million kilowatts in Xilingol, Ordos, northern Shanxi, central Jinzhong, eastern Shanxi, northern Shaanxi, Hami, Zhundong and Ningdong. Develop long-distance and large-capacity power transmission technology, expand the scale of west-to-east power transmission, and implement the north-south power transmission project. Strengthen the construction of coal railway transportation channels, focus on the construction of railway coal transportation channels from western Inner Mongolia to central China, and improve the west-east coal transportation channel. By 2020, the national coal railway transportation capacity will reach 3 billion tons.

**Improve the level of clean utilization of coal.** Formulate and implement a plan for the clean and efficient utilization of coal, actively promote coal classification and tiered utilization, increase the proportion of coal washing, and encourage on-site clean conversion and utilization of low calorific value coal such as coal gangue and low-quality coal. Establish and improve the coal quality management system and strengthen the supervision and management of coal development, processing, transformation and use. Strengthen quality supervision of imported coal. Significantly reduce scattered direct combustion of coal and encourage the use of clean coal and briquettes in rural areas.

## **2. Steadily increase domestic oil production.**

Adhere to equal emphasis on land and sea, consolidate old oil fields, develop new oil fields, break through offshore oil fields, vigorously support the development of low-grade resources, and

build 90 million-plus oilfields in Daqing, Liaohe, Xinjiang, Tarim, Shengli, Changqing, Bohai, Nanhai, Yanchang, etc. Ton-level large oil fields.

**Stabilize the output of old oil fields in the east.** Focusing on the Songliao Basin and the Bohai Bay Basin, we will deepen precision exploration and development, actively develop advanced oil production technologies, strive to increase reserves and tap potential, improve crude oil recovery, and maintain basically stable production.

**Increase reserves and production in the western region.** Focusing on the Tarim Basin, Ordos Basin, Junggar Basin, and Qaidam Basin, we will increase efforts in the exploration and development of oil and gas resources, promote the application of advanced technologies, and strive to discover more high-quality reserves and increase oil production. Increase efforts in oil and gas geological survey research and exploration and development technology in new areas such as the Qiangtang Basin, and expand new reserves and production growth areas.

**Accelerate offshore oil development.** In accordance with the policy of focusing on the near and supporting the distant, combining the near and far, and promoting independent development and foreign cooperation simultaneously, strengthen offshore oil and gas exploration and development in the Bohai Sea, East China Sea, South China Sea and other sea areas, strengthen tracking and analysis of the deepwater oil and gas exploration and development situation in the South China Sea, actively promote deep-sea external bidding and cooperation, and achieve breakthroughs as soon as possible. Deep-sea oil production technology and independent manufacturing capabilities of equipment will greatly



increase offshore oil and gas production.

**Strong support for the development of low-grade resources.** Carry out the construction of demonstration projects for the development of low-grade resources, encourage the development and market transfer of difficult-to-use reserves and oil fields on the verge of exhaustion, and support the development of low-grade resources through technical services, general engineering contracting, and other methods.

### 3. Vigorously develop natural gas.

In accordance with the principle of equal emphasis on land and sea areas, and equal emphasis on conventional and unconventional natural gas, we will accelerate the increase in conventional natural gas reserves and production, break through the development bottleneck of unconventional natural gas as soon as possible, and promote the rapid growth of natural gas reserves and production.

**Accelerate conventional natural gas exploration and development.** Focusing on the Sichuan Basin, Ordos Basin, Tarim Basin and South China Sea, we will strengthen scientific and technological research in the three major areas of low-grade in the west, deep water in the east, and deep water in the sea, increase exploration and development efforts, strive to achieve major breakthroughs and discoveries, and strive to build 8 annual output A large-scale natural gas production base of over 10 billion cubic meters. By 2020, the cumulative new proven geological reserves of conventional natural gas will be 5.5 trillion cubic meters, and the annual conventional natural gas output will be 185 billion cubic meters.

**Focus on breakthroughs in the development of shale gas and coalbed methane.** Strengthen shale gas geological survey and research,

accelerate the research and development and application of "factory-based" and "package-based" technologies, explore and form advanced and applicable shale gas exploration and development technology models and business models, and cultivate independent innovation and equipment manufacturing capabilities. Efforts will be made to increase the reserves and production scale of national demonstration areas such as Changning-Weiyuan in Sichuan, Fuling in Chongqing, Zhaotong in Yunnan, and Yan'an in Shaanxi, while striving to achieve breakthroughs in Hunan, Hubei, Yunnan, Guizhou, Jiangsu and Anhui. By 2020, shale gas production will strive to exceed 30 billion cubic meters. Focusing on the Qinshui Basin and the eastern edge of the Ordos Basin, we will increase support and accelerate the pace of coalbed methane exploration and production. By 2020, coalbed methane production will strive to reach 30 billion cubic meters.

Actively promote the exploration and evaluation of natural gas hydrate resources. Increase efforts in technological research on natural gas hydrate exploration and development, cultivate core technologies with independent intellectual property rights, and actively promote trial mining projects.

#### 4. Actively develop energy alternatives.

Adhere to the policy of simultaneously promoting coal-based substitution, biomass substitution and transportation substitution, and scientifically develop petroleum substitution. By 2020, the oil substitution capacity will be more than 40 million tons.

We will steadily implement coal-to-oil and coal-to-gas demonstration projects. In accordance with the principles of cleanliness and efficiency, taking measures to measure water, scientific layout,

outstanding demonstration, and independent innovation, we will steadily promote coal-to-oil and coal-to-gas technology research and development and industrial upgrading demonstration projects focusing on Xinjiang, Inner Mongolia, Shaanxi, Shanxi and other places. , master core technologies, strictly control energy consumption, water consumption and pollutant emissions, and form a moderate-scale coal-based fuel substitution capability.

**Actively develop transportation fuel substitution.** Strengthen the research and demonstration of advanced biomass energy technology, focus on the development of new generation non-grain fuel ethanol and biodiesel, and deploy microalgae oil production technology in advance. Accelerate the development of pure electric vehicles, hybrid vehicles and ships, natural gas vehicles and ships, and expand the scale of transportation fuel substitution.

#### **5. Strengthen the construction of emergency reserve capabilities.**

Improve the energy reserve system, establish a reserve system that combines national reserves with corporate reserves, and combines strategic reserves with production and operation reserves, establish and improve the national energy emergency support system, and improve energy security capabilities.

**Expand the scale of oil reserves.** The second phase of the national oil reserve project will be completed, the third phase project will be launched, private capital will be encouraged to participate in reserve construction, corporate compulsory reserves will be established, and the development of commercial reserves will be encouraged.

**Improve natural gas storage capacity.** Accelerate the construction of natural gas storage facilities, encourage the development of corporate commercial reserves, support natural gas production

companies in participating in peak shaving, and increase the scale of gas storage and emergency peak shaving capabilities.

**Establish resource reserves of scarce coal varieties.** Encourage the import of high-quality and scarce coal resources, support enterprises in building transit storage and transportation facilities in coal-deficient areas and coal distribution centers, and improve the coal emergency reserve system.

**Improve the energy emergency system.** Strengthen energy security information guarantee and decision-making support capabilities, gradually establish emergency command and comprehensive management systems for key energy varieties and energy channels, and improve prediction, early warning, and prevention and response levels.

## **(2) Promote the energy consumption revolution.**

Adjust and optimize the economic structure, change the concept of energy consumption, strengthen energy conservation and demand-side management in industry, transportation, and buildings, pay attention to energy conservation in daily life, strictly control the excessive growth of total energy consumption, effectively reverse the extensive energy consumption pattern, and continuously improve the efficiency of energy use.

### **1. Strictly control the excessive growth of energy consumption.**

In accordance with the principle of differentiation and combined with regional and industry energy consumption characteristics, we must strictly control the excessive growth of energy consumption and effectively transform the way of energy development and utilization.

**Implement the “one hanging double control” measure.** Link energy consumption with economic growth, implement strong constraints on total energy consumption control for high energy-consuming

industries and industries with overcapacity, and impose strong constraints on other industries according to advanced energy efficiency standards. Existing production capacity must meet energy efficiency standards within a time limit, and new production capacity must comply with domestic standards. Advanced energy efficiency standards.

**Promote regional differentiated energy policies.** In the western region, which is rich in energy resources, based on the carrying capacity of water resources and ecological environment, on the premise of water conservation, energy conservation, environmental protection, and advanced technology, we should reasonably increase energy development efforts and enhance cross-regional transfer capabilities. Reasonably control the intensity of energy development in the central region. Vigorously optimize the energy structure of the eastern region and encourage the development of competitive new and renewable energy.

**Control total coal consumption.** Formulate mid- and long-term control targets for the country's total coal consumption, implement coal consumption reduction and substitution, and reduce the proportion of coal consumption.

## **2. Focus on implementing energy efficiency improvement plans.**

Adhere to the priority of energy conservation, focus on industry, construction and transportation, innovate development methods, and form energy-saving production and consumption models.

**Implement the action plan for coal power upgrading and transformation.** Implement energy-saving and emission-reduction upgrade projects for old coal-fired power units, and strive to reduce coal consumption in power supply to about 300 grams of standard coal per kilowatt-hour within five years for units currently in service

of 600,000 kilowatts (excluding air-cooled units) and above.

**Implement the industrial energy conservation action plan.** Strictly restrict the expansion of energy-intensive industries and surplus industries, accelerate the elimination of backward production capacity, implement ten key energy-saving projects, and carry out in-depth energy-saving and low-carbon actions for thousands of enterprises. Implement energy efficiency improvement plans for key energy-consuming equipment such as motors, internal combustion engines, and boilers, and promote the utilization of waste heat and pressure in industrial enterprises. Deeply promote demand-side management in the industrial sector, actively develop high-efficiency boilers and high-efficiency motors, promote the improvement of energy efficiency of end-use energy products and meet the energy efficiency standards of key energy-consuming industries. Earnestly carry out environmental impact assessments and energy conservation assessment reviews of new projects.

**Implement a green building action plan.** Strengthen building energy consumption planning, implement building energy efficiency improvement projects, implement 75% energy-saving design standards for residential buildings as soon as possible, accelerate the construction of green buildings and renovation of existing buildings, implement energy consumption limits for public buildings and green building rating and labeling systems, and vigorously promote energy conservation electrical appliances and green lighting, and actively promote the construction of new energy cities. Vigorously develop low-carbon ecological cities and green ecological urban areas. By 2020, green buildings in cities and towns will account for 50% of new buildings. Accelerate the reform of heat supply metering, and implement heat metering

charges for new buildings and existing buildings that have been transformed by heat metering.

**Implement the green transportation action plan.** Improve the comprehensive transportation system planning and accelerate the construction of the comprehensive transportation system. Actively promote the industrialization of clean energy vehicles and ships, and improve vehicle fuel economy standards and environmental protection standards. Accelerate the development of resource-saving and environmentally friendly transportation modes such as rail transit and water transportation, and promote the construction of intercity railways in major urban agglomerations. Vigorously develop urban public transportation, strengthen the construction of urban walking and bicycle transportation systems, and increase the proportion of public travel and non-motorized travel.

### **3. Promote changes in urban and rural energy use patterns.**

In accordance with the overall requirements of integrated urban and rural development and new urbanization, we must adhere to the combination of centralized and decentralized energy supply, build urban and rural energy supply facilities according to local conditions, promote the transformation of urban and rural energy consumption patterns, and improve the level and efficiency of urban and rural energy consumption.

**Implement the new towns, new energy, and new life action plan.** Scientifically prepare urban planning, optimize urban spatial layout, promote the deep integration of informatization, low-carbonization and urbanization, and build low-carbon smart towns. Formulate comprehensive urban energy plans, vigorously develop distributed energy, scientifically develop combined heat and

power, encourage qualified areas to develop combined heating, power and cooling, and develop wind energy, solar energy, biomass energy, and geothermal energy for heating.

**Accelerate the transformation of rural energy consumption patterns.** We should promptly study and formulate long-term policies and measures, promote the construction of green energy counties, townships and villages, vigorously develop rural small hydropower, strengthen the construction of new rural electrification hydropower counties and small hydropower ecological protection projects for fuel substitution, develop rural renewable energy according to local conditions, and promote non-commodity Clean and efficient use of energy and strengthen rural energy conservation.

**Carry out national energy-saving actions.** Implement the national energy-saving action plan, strengthen publicity and education, popularize energy-saving knowledge, promote new energy-saving technologies and products, vigorously promote green lifestyles, guide residents to use energy scientifically and rationally, and make energy conservation a conscious action for the whole society.

### **(3) Optimize energy structure.**

Actively develop clean energy such as natural gas, nuclear power, and renewable energy, reduce the proportion of coal consumption, and promote the continuous optimization of the energy structure.

#### **1. Reduce the proportion of coal consumption.**

Accelerate the supply of clean energy, control the total coal consumption in key areas and key areas, promote reduction and substitution, and reduce coal consumption. By 2020, the proportion of national coal consumption will drop to less than 62%.

**Reduce the total coal consumption in the Beijing-Tianjin-Hebei-Shandong,**



Yangtze River Delta and Pearl River Delta regions. We will intensify the elimination of backward production capacity in high-energy-consuming industries, expand the supply of external electricity, natural gas and non-fossil energy, and reduce and replace coal in coal-consuming projects. By 2020, coal consumption in the four provinces and cities of Beijing, Tianjin, Hebei, and Shandong will decrease by 100 million tons compared with 2012, and total coal consumption in the Yangtze River Delta and Pearl River Delta will show negative growth.

**Control coal consumption in key coal-using areas.** Focusing on economically developed regions and large and medium-sized cities, we will orderly promote the "coal-to-gas" project in key coal-using areas, strengthen the utilization of waste heat and residual pressure, and accelerate the elimination of scattered coal-fired small boilers. By 2017, we will basically complete the coal-fired work in key areas. Natural gas replacement and transformation tasks such as boilers and industrial kilns. Combined with the transformation of urban villages, urban-rural fringes, and shantytowns, the scope of urban coal-free areas will be expanded, gradually extending from urban built-up areas to suburban areas, and the scattered use of urban coal will be significantly reduced.

## **2. Increase the proportion of natural gas consumption.**

We must adhere to the combination of increasing supply and improving energy efficiency, strengthen the construction of gas supply facilities, expand natural gas imports, and expand the application of natural gas in urban areas in an orderly manner. By 2020, the proportion of natural gas in primary energy consumption will increase to more than 10%.

**Implement gasification urban livelihood projects.** New natural gas should

be given priority to ensure residents' livelihood and replace dispersed coal burning, and organize and implement plans to clean energy for urban residents. By 2020, urban residents will basically have access to natural gas.

**Steady development of natural gas transportation.** Combined with the national natural gas development planning and layout, formulate a medium and long-term plan for the development of natural gas transportation, accelerate the construction of natural gas filling station facilities, focus on urban taxis and buses, actively and orderly develop liquefied natural gas vehicles and compressed natural gas vehicles, and steadily develop natural gas family cars, intercity buses, heavy trucks and ships.

**Moderately develop natural gas power generation.** In key air pollution prevention and control areas such as Beijing-Tianjin-Hebei-Shandong, the Yangtze River Delta, and the Pearl River Delta, natural gas peaking power stations will be developed in an orderly manner, and gas-steam combined cycle cogeneration will be appropriately developed based on heat load needs.

**Accelerate the construction of natural gas pipeline networks and gas storage facilities.** In accordance with the gas supply pattern of west-to-east gas transmission, north-to-south gas, and sea-to-sea gas landing, the construction of natural gas pipelines and gas storage facilities will be accelerated to form a national natural gas trunk pipeline network connecting import channels, major production areas, and consumption areas. By 2020, the length of natural gas trunk pipelines will reach more than 120,000 kilometers.

**Expand the scale of natural gas imports.** Increase the import of liquefied natural gas and pipeline natural gas.

### 3. Safely develop nuclear power.

On the premise of adopting the highest international safety standards and ensuring safety, start the construction of new nuclear power projects in the eastern coastal areas in a timely manner, and study and demonstrate the construction of inland nuclear power. Persist in introducing, digesting, absorbing and re-innovating, focusing on promoting AP1000, CAP1400, high-temperature gas-cooled reactors, fast reactors and post-processing technology research. Accelerate the verification of domestic independent technological projects and focus on the construction of major special demonstration projects for large-scale advanced pressurized water reactors and high-temperature gas-cooled reactors. Actively promote basic theoretical research on nuclear power, nuclear safety technology research, development, design and engineering construction, and improve the nuclear fuel cycle system. Actively promote the "going out" of nuclear power. Strengthen the popularization of nuclear power science and nuclear safety knowledge. By 2020, the installed nuclear power capacity will reach 58 million kilowatts, and the capacity under construction will reach more than 30 million kilowatts.

### 4. Vigorously develop renewable energy.

Accelerate the development of renewable energy in accordance with the principles of equal emphasis on output and on-site consumption and utilization, as well as centralized and distributed development. By 2020, non-fossil energy will account for 15% of primary energy consumption.

**Actively develop hydropower.** On the premise of protecting the ecological environment and resettling immigrants, we will actively and orderly promote the construction of large-scale hydropower

bases, focusing on the Jinsha River, Yalong River, Dadu River, Lancang River and other rivers in the southwest. Develop small and medium-sized power stations according to local conditions, carry out the planning and construction of pumped storage power stations, and strengthen the comprehensive utilization of water resources. By 2020, we will strive to achieve a conventional hydropower installed capacity of approximately 350 million kilowatts.

**Vigorously develop wind power.** Focus on planning and construction of 9 large-scale modern wind power bases and supporting transmission projects in Jiuquan, western Inner Mongolia, eastern Inner Mongolia, northern Hebei, Jilin, Heilongjiang, Shandong, Hami, and Jiangsu. Focusing on the southern and central-eastern regions, we will vigorously develop distributed wind power and steadily develop offshore wind power. By 2020, the installed capacity of wind power will reach 200 million kilowatts, and the on-grid electricity prices of wind power and coal power will be the same.

**Accelerate the development of solar power generation.** Promote the construction of photovoltaic bases in an orderly manner, and simultaneously complete the construction of local consumption and utilization and centralized transmission channels. Accelerate the construction of distributed photovoltaic power generation application demonstration zones and steadily implement solar thermal power generation demonstration projects. Strengthen solar power grid connection services. Encourage large public buildings, public facilities, industrial parks, etc. to build rooftop distributed photovoltaic power generation. By 2020, the installed photovoltaic capacity will reach about 100 million kilowatts, and

the price of photovoltaic power generation will be equivalent to that of the electricity sold by the grid.

**Actively develop geothermal energy, biomass energy and ocean energy.** Adhere to the policy of overall planning, adapting measures to local conditions, and diversified development, conduct an orderly survey of geothermal energy and ocean energy resources, formulate a development and utilization plan for biomass energy and geothermal energy, actively promote the clean and efficient use of geothermal energy, biomass and ocean energy, and promote biomass Energy and geothermal heating, and carry out geothermal power generation and ocean energy power generation demonstration projects. By 2020, the utilization scale of geothermal energy will reach 50 million tons of standard coal.

**Improve the utilization level of renewable energy.** Strengthen the overall planning of power supply and power grid, scientifically arrange peak shaving, frequency modulation, and energy storage supporting capabilities, and effectively solve the problems of wind, water, and light abandonment.

#### **(4) Expand international cooperation in energy.**

Coordinate the utilization of both domestic and international resources and markets, insist on promoting both investment and trade, and land and sea routes, accelerate the formulation of medium- and long-term plans for the utilization of overseas energy resources, focus on expanding import channels, and strive to build the Silk Road Economic Belt and the 21st Century Maritime Silk Road road, the Bangladesh-China-India-Myanmar Economic Corridor and the China-Pakistan Economic Corridor, and actively support the "going out" of energy technology, equipment and engineering teams.

Strengthen the construction of Russia's five key energy

cooperation regions in Central Asia, the Middle East, Africa, the Americas and the Asia-Pacific, deepen international bilateral and multilateral energy cooperation, and establish a regional energy trading market. Actively participate in global energy governance. Strengthen overall planning and coordination to support enterprises in “going global”.

#### **(5) Promote energy technology innovation.**

In accordance with the principles of innovating mechanisms, laying a solid foundation, deploying in advance, and leapfrogging key points, we will strengthen independent innovation in science and technology, encourage introduction, digestion, absorption and re-innovation, create an upgraded version of energy science and technology innovation, and build a powerful country in energy science and technology.

##### **1. Clarify the strategic direction and focus of energy technology innovation.**

Grasping the strategic direction of green, low-carbon, and smart energy development, and focusing on long-term goals such as ensuring safety, optimizing structure, and energy conservation and emission reduction, we have established unconventional oil and gas and deep-sea oil and gas exploration and development, clean and efficient utilization of coal, distributed energy, smart grids, Nine key innovation areas including new generation nuclear power, advanced renewable energy, energy and water conservation, energy storage, and basic materials are identified, including shale gas, coal bed methane, shale oil, deep sea oil and gas, coal deep processing, and high-parameter energy-saving and environmentally friendly coal-fired power generation. , integrated coal gasification combined cycle power generation, gas turbines, modern power grids, advanced nuclear power, photovoltaics, solar thermal

power generation, wind power, biofuels, geothermal energy utilization, ocean energy power generation, natural gas hydrates, large-capacity energy storage, hydrogen energy and fuel cells, 20 key innovation directions such as energy basic materials, etc., and correspondingly carry out major demonstration projects such as shale gas, coal bed methane, and deepwater oil and gas development.

## 2. Carry out major scientific and technological projects.

Accelerate the implementation of major national science and technology projects for the development of large oil and gas fields and coalbed methane. Strengthen major national science and technology projects for large-scale advanced pressurized water reactors and high-temperature gas-cooled reactor nuclear power plants. Strengthen technological research and strive to achieve major breakthroughs in core technologies such as shale gas, deep-sea oil and gas, natural gas hydrates, and new generation nuclear power.

## 3. Rely on major projects to drive independent innovation.

Relying on major energy projects such as offshore oil and gas and unconventional oil and gas exploration and development, efficient and clean utilization of coal, advanced nuclear power, renewable energy development, and smart grids, we will accelerate the transformation of scientific and technological achievements, accelerate the construction of energy equipment manufacturing innovation platforms, and support the "development of advanced energy technology and equipment". "Go out" and form an internationally competitive energy equipment industry system.

## 4. Accelerate the construction of energy science and technology innovation system.

Formulate national energy technology innovation and energy equipment development strategies. Establish an innovation system with enterprises as the main body, market as the guide, and combining government, industry, academia, and research. Encourage the establishment of diversified energy technology venture capital funds. Strengthen the construction of energy talent teams, encourage the introduction of high-end talents, and cultivate a group of leading talents in energy science and technology.

### 3. Safeguard measures

#### (1) Deepen the reform of the energy system.

Adhere to the direction of socialist market economic reform, enable the market to play a decisive role in resource allocation and better play the role of the government, deepen the reform of the energy system, and create a good institutional environment for establishing a modern energy system and ensuring national energy security.

**Improve the modern energy market system.** Establish a modern energy market system that is unified, open, competitive and orderly. We will further promote the separation of government and enterprises, separate natural monopoly businesses from competitive businesses, and liberalize competitive areas and links. Implement a unified market access system, and on the basis of formulating a negative list, encourage and guide various market entities to enter areas outside the negative list on an equal basis in accordance with the law, and promote the diversification of energy investment entities. Deepen the reform of state-owned energy enterprises, improve the incentive and assessment mechanisms, and improve the competitiveness of enterprises. Encourage the use of futures market for hedging and promote the construction of crude oil



futures market.

**Promote energy price reform.** Promote price reform in the fields of oil, natural gas, electricity and other fields, and liberalize competitive link prices in an orderly manner. Natural gas wellhead prices and sales prices, on-grid electricity prices and sales electricity prices are formed by the market, and power transmission and distribution prices and oil and gas pipeline transmission prices are set by the government.

**Deepen reforms in key areas and key links.** Focus on promoting the reform of the construction and operation system of power grids and oil and gas pipeline networks, clarifying the functional positioning of power grids and oil and gas pipeline networks, and gradually establishing a power and oil and gas transmission network with fair access, supply and demand orientation, reliability and flexibility. Accelerate the pace of power system reform, promote direct transactions between supply and demand, and build a competitive power trading market.

**Improve energy laws and regulations.** Accelerate the formulation of energy laws and the revision of electric power laws and coal laws. Actively promote the formulation or revision of administrative regulations such as offshore oil and gas pipeline protection, nuclear power management, and energy reserves.

**Further transform government functions and improve the energy supervision system.** Strengthen the formulation and implementation of energy development strategies, plans, policies, standards, etc., accelerate administrative streamlining and delegate power, and continue to cancel and delegate administrative approval matters. Strengthen energy supervision, improve the supervision organization system and legal system, innovate supervision

methods, improve supervision efficiency, maintain a fair and just market order, and create a good environment for the healthy development of the energy industry.

## **(2) Sound and improve energy policies.**

**Improve energy tax policies.** Accelerate the reform of resource taxes and fees, actively promote the establishment of taxes by clearing fees, and gradually expand the scope of resource taxes based on ad valorem calculations. Study and adjust the taxation procedures and tax rates of energy consumption tax, and include some high-energy-consuming and high-pollution products into the scope of taxation. Improve tax policies for energy conservation and emission reduction, establish and improve ecological compensation mechanisms, accelerate environmental protection tax legislation, and explore the establishment of a green tax system.

**Improve energy investment and industrial policies.** On the basis of giving full play to the role of the market, expand the scale of geological exploration funds, focus on supporting and guiding the development of unconventional oil and gas and deep-sea oil and gas resources and international cooperation, and improve the government's support for basic, strategic, cutting-edge scientific research and common technology research and major Equipment support mechanisms. Improve the reserve compensation policy for peak and frequency regulation, and implement the renewable energy power quota system and full guaranteed purchase policy and supporting measures. Banking financial institutions are encouraged to increase support for energy conservation and efficiency improvement, comprehensive utilization of energy resources and clean energy projects in accordance with the principles of risk control and commercial sustainability. Research and formulate

incentive policies to promote the development of green credit.

**Improve energy consumption policies.** Implement differentiated energy price policies. Strengthen energy demand-side management, implement contract energy management, cultivate energy-saving service agencies and energy service companies, and implement an energy audit system. Improve the energy conservation evaluation and review system for fixed asset investment projects and implement the energy efficiency "leader" system.

### **(3) Do a good job in organization and implementation.**

**Strengthen organizational leadership.** Give full play to the leadership role of the National Energy Commission, strengthen research and review of major energy strategic issues, and guide and promote the implementation of this action plan. The Energy Bureau must effectively perform the duties of the National Energy Commission office and organize and coordinate various departments to formulate implementation details.

**Detailed task implementation.** Relevant departments of the State Council, provinces (autonomous regions, municipalities) and key energy enterprises must include the implementation of this action plan on the important agenda of their own departments, regions and enterprises, and ensure the connection between various planning plans and this action plan. The Office of the National Energy Commission should formulate an implementation plan, break down the implementation goals and tasks, clarify the schedule and coordination mechanism, and carefully organize the implementation.

**Strengthen supervision and inspection.** The Office of the National Energy Commission should closely track the progress of the work, grasp the completion of the goals and tasks, and urge the implementation of various measures to achieve practical results.

During the implementation process, evaluation inspections and assessments must be organized regularly, and major situations must be reported to the State Council in a timely manner.

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