Introduction on Recent Energy Development in China

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General Guideline of Energy Development in China

President Xi Jinping proposed energy development strategic concept of Four Revolutions and One Cooperation on 6th meeting of Central Leading Group on Financial and Economic Affairs.

- To promote energy system revolution and open up energy development fast lane
- To strengthen international cooperation comprehensively and realize energy security under open economy circumstance

- To promote energy technology revolution and drive the industrial upgrading
- To promote energy supply revolution and establish diversified supply system

- To promote energy consumption revolution and remove unreasonable energy consumption
• Higher requirement on energy development was proposed on the 13th Five-Year Plan for Economic and Social Development, and five development concepts (innovation, coordination, green, open and sharing) were put forward.

• The target is to establish a modern energy system featured by clean energy, low carbon, security and high efficiency.

• During the 13th Five-year Plan, energy consumption will be under 5 billion tons standard coal equivalent (SCE), with ratio of non-fossil energy consumption increasing to over 15%, energy consumption and CO2 emission per GDP reduced by 15% and 18% respectively.
Energy Plan and Policy

- Energy Revolution Strategy of Production and Consumption to 2030 and 13th Five-Year Energy Development Plan were finished and would be released.

- Fourteen specific plans of 13th Five-Year on electricity, natural gas, coal and shale gas etc were basically finished and would be published successively.


- A batch of important specific policies were issued in the field of renewable energy, coal, oil and gas recently.
Policy on Renewable Energy

• To set specific goal of renewable development and utilization, make scientific plan of development and utilization and explicit responsibilities and obligation.

• In March, National Energy Administration issued Guideline of Establish the Goal-orientation Regulation on Renewable Energy Development and Utilization.

• Until 2020, the non-hydro renewable power-generation should account for over 9 percent of total generation of each enterprise except for specific non-fossil energy production enterprises.

• The power utilization ratio of non-hydro renewable energy to total electricity utilization in China will be 9%. In each province, the ratio varies from 5-13%. 

APEC EWG52
Policy on Renewable Energy


• Feed-in tariff benchmark for solar thermal power generation was 1.15 RMB /kWh (0.17$/kWh) according to the notification.

• Local government was encouraged to take measures to support solar thermal power generation enterprise by means of tax cuts, financial subsidies and land concessions etc.

• After 2019, the price of newly built solar thermal power generation will be gradually reduced according to the status of industrial development in China.

• The first batch of solar thermal power generation projects has been launched, of which 20 units with 1349 MW total installed capacity were under construction.
The Chinese government is actively promoting the reform of natural gas prices with the ultimate goal of *let go the initial & terminal and grasp the middle*. i.e., Gas sales price is formed by the market, pipe network transmission and distribution price with natural monopoly property is supervised by the government.

To stimulate the enthusiasm of social capital investment in building the pipeline, to promote the pipeline market opening to a third party and the natural gas prices marketization.

NDRC issued the *Natural Gas Pipeline Transport Price Management Measures (Trial)* and *Natural Gas Pipeline Transport Pricing Supervision and Inspection Measures (Trial)* in October, 2016.

Pricing changes from the current project cost-benefit method with the price yield range of 8% -12% variation in each line, into a price cap pricing method according to the pipeline gas service pricing costs plus 8% of the permitted yield.

Supervision object changes from a single pipe into pipeline transport enterprises, requiring oil and gas companies to separate the pipeline transportation business with other ones, or achieve independent financial accounting for the pipeline business.

The way of price announcement changes from announced by the state into announced by the enterprises on the basis of measurement and calculation after the pipeline transmission price rate is checked by the government.
Policy of Coal Industry

• In February, the State Council issued the Opinions on excess manufacturing capacity relocation development of poverty alleviation in coal industry

• China's coal demand fell sharply and the supply capacity continues to excess with the factors of slowdown in economic growth, energy structure adjustment and so on in recent years, thus to relocate the excess capacity becomes an inevitable choice.

• The coal production capacity is planned to be reduced sharply from the year of 2016. About 500 million tons would be dropped out, about 500 million tons would be relocated within 3 to 5 years.

• In principle, new coal mine construction projects will not be approved for the next 3 years from 2016 on. Small coal mines with the production capacity of less than 300,000 tons per year would be closed down ASAP according to the law.
Energy Supply

- In 2015, China's total primary energy production was 3620 Mtce.
- Raw coal production was 3.75 billion tons, decreasing by 20 million tons or 3.3% over the previous year.
- Crude oil production reached 215 million tons, increasing by 1.5%, accounting for about 5% of world output (ranking No. 4 in the world). Natural gas production was 134.6 billion cubic meters, increasing by 3.4% (ranking No. 6 in the world).
- Electric power installed capacity reached 1,510GW with the annual generation capacity of 5.8 trillion kwh, both ranking first in the world.
- Non-fossil energy power generation installed capacity proportion increased to 35%, and the new installed capacity accounts for 40% of the world. Hydropower installed capacity was 320 GW, wind power 129 GW, PV 43.18 GW, all ranking first in the world.
- China imported 335 million tons of crude oil, 61.2 billion cubic meters of natural gas, 204 million tons of coal in 2015. By the beginning of 2016, eight national oil reserve bases including Zhoushan, Dushanzi and Tianjin bases have been built, reserving 31.97 million tons of crude oil.
- The problem of electricity utilization in remote areas without electricity has been comprehensively solved in 2015. All the 1.3 billion people access to the right to use modern energy in China.
Recent Energy Supply

- The total coal production continues to decline. The number is 2.18 billion tons from January to August in 2016 and plunged 10.2 percent over the previous year.

- The total Non-fossil energy power generation installed capacity reached about 520 GW, accounting for 33.5% of the country's total installed capacity.

- Non-fossil energy power generation increased by 14.4%, accounting for more than 25% of the total.

- Renewable energy installed capacity is about 36 GW, which is far more than the installed capacity of coal-fired power plant in the same period of time.
Energy Consumption

• Non-fossil energy sources will account for 15% of the total primary energy consumption by 2020, and it will further increase to about 20% by 2030.

• China aims to achieve CO₂ emissions peak around 2030 and makes best effort to peak as early as possible. Lower CO₂ emissions per unit of GDP by 60%-65% from 2005 level.

• Under the guidance of the above objectives, China will accelerate the strategic adjustment of energy structure, adhere to clean and low carbon strategic direction, focus on increasing the proportion of non-fossil energy and natural gas consumption, and realize the substitution for coal and other traditional fossil energy gradually.
Recent energy consumption

• China's economy continues to be in the process of transformation with GDP growth rate of more than 6.5% in 2016. It is widely believed that economy will continue to maintain steady growth at low speed with the estimated annual energy consumption growth rate of 1.2%.

• From January to August of this year, energy consumption growth rate increased by about 0.4% over the same period last year.

• Residential energy consumption continues to maintain high growth, electricity consumption increasing 10% over the same period last year.

• Energy demand of some emerging industries, including information industry and software industry, increased rapidly by 11%.

• Electricity consumption of the third industry increased 11% over the same period last year.

• Natural gas consumption reached 150 bcm with the growth rate 8.7%, due to air quality improvement policies and expanded city gas consumption.
Energy Science and Technology Innovation

- To enhance research on strategies of major energy technologies and building important energy technologies demonstration projects.
- Output value of Equipment manufacturing industry reached more than 2.98 trillion US Dollar, accounting for 1/3 of the world.
- 《Energy Technology Innovation Action (2016-2030)》 was issued.
- The third-generation Pressurized Water Reactor Hualong No.1, China's first independent research and development, started construction on May, 2015.
- 700 MW domestically designed and manufactured hydro turbine has been in operation.
- The 1000 KV AC and 800 KV DC power transmission equipment, which is the highest voltage level in the world, has been in operation.
- 3 MW wind turbine are now widely used.
- The number of 1000MW Hyper-ultra supercritical coal fired power generation units in operation has added up to more than 60, which topped the world. The coal consumption in Shanghai Waigaoqiaoao power plant reached 276 grams per kilowatt, reaching the leading level of the world.
- Production lines including 1 tons level coal directly to liquid, 16tons coal indirectly to liquid, 4 bcm coal to natural gas and 600 thousand tons coal to olefin with self-owned intellectual property right have been put into use.
Energy System Reform

- Energy market reform has made important progress.
- Since this year, comprehensive electric reform pilots have been carried out in 14 provinces and electricity sales business opening in 7 provinces. Electricity sales price reform has positive impact on electricity cost reduction of electricity consumers, with the reduction of 0.03-0.06 RMB/kWh for most of consumers.
- During natural gas consumption off season, two petroleum companies made price-off promotions for large direct-supplying electricity consumers with 0.2-0.4RMB/m³ price reduction, as a result the consumption increased by more than 2 bcm.
- 18 private refineries have got crude oil import and processing qualifications, accounting for about 24.5% and 16.8% of the market of crude oil processing capability and quantity.
Guideline for International Cooperation In Energy Sector

• To intensify all-round international cooperation in energy sector

• To accelerate cooperation in energy infrastructure interconnectivity and capacity under the Belt and Road Initiative

• To create a new pattern of wide, deep and high-level opening and sharing

• Win-win cooperation and common development
International Energy Cooperation

• G20 Energy Ministers Meeting was successfully held in Beijing in June. Vice Premier Zhang Gaoli attended the opening ceremony and delivered a speech.

• This meeting was themed Shaping a Low-carbon, Smart and Sharing Energy Future.

Contracts for the Hinkley Point C nuclear power station were signed by EDF Group, CGN (China General Nuclear Corporation) and the UK government on September 30. The project was the first new nuclear construction in the past 20 years.

The total investment of the project estimates 18 billion GBP. The plant’s two EPR reactors will provide reliable, low carbon electricity to meet 7% of the UK’s future electricity needs.

Construction of Hinkley Point C will create 25,000 jobs during its construction and will reduce 9 million ton CO2 equivalent during its lifetime.