The Construct of Energy Policy and Its Public Administration Interoperability

Xiaofeng Ma
College of Humanities and Law, Beijing University of Chemical and Technology, Beijing 100029, China

Abstract: Chinese status of energy source, development of new energy source and environmental protection and energy saving of vehicle are discussed as the main point in energy current situation. However, with the continuously increasing of modern productivity, the energy supply capability has been remarkably enhanced; it makes the good results in saving energy resources and raising efficiency; consumption structure were optimized; the development of science and technology and environmental protected made progress; also, market environment improved step by step. Currently, Chinese energy consumption has ranked second in the world.

Key Words: Energy Policy Public Administration Management Interoperability

With the development of China's economy and the acceleration of industrialization and urbanization, growing strongly of energy demand, China faces significant challenges to construct the safety, stability and economic, clean and modern energy industry system. The challenge are mainly in the following respects: increasing resources limitation, low energy efficiency, expended in the energy on the coal primarily, increased pressure on environmental resources, imperfect of market system and emergency ability should be strengthened.

1. Transportation Development Characteristics and Energy Consumption Situation in China

China's energy present situation had decided the construction energy conservation is the Chinese sustainable development strategic choice.

As the rapid economic development, traffic spending is increased year by year accounts for total consumption spending. With the continuous increase of the urban residents and the increasingly mature consumers, residents travel demands amounts increased rapidly. At the same time, the urban coverage and urban population have mushroomed in China; the distance of residents traveling is also increasing quickly; the quantity of private automobiles in cities increasingly goes up; travel structure significantly changed. Transportation infrastructure is faster and faster while proportion of bus travel and the level is slower hereby. The proportion of resident lifestyle leisure and travel frequency is low. External cost of car use is high and the cost from the private car owner is low. The transportation industry energy consumption is increasing rapidly, at the same time, the ratio of medium and small automobile energy consumption is the maximum ratio in all the transportation consumption.

From the macro policy analysis of energy strategy and transportation, it plays an important role in China's transportation policy. Based on energy strategy, the transportation policy is much relied on this and both are closely connected and inseparable. Take the form of urban development for example, it is starting from the transportation energy saving□implementing public transportation, guiding the use of private car, improving use efficiency of cars, encouraging low energy consumption and high energy efficiency policy.

Bring forward the strategy for solving China's energy issues through analyzing current situation of energy in the world and the energy dilemma faced by China. The energy policy of the People's Republic of China is a policy decided on by the Central Government with regard to energy and energy resources. The country is currently the world's largest emitter of greenhouse gases according to a Dutch research agency. However, China's per capita emissions are still far behind some of the developed countries. In addition, China is also the world's leading renewable energy producer.

2. China's Environment and Carbon Emissions

Primary energy use in China was 26,250 TWh and 20 TWh per million persons in 2009. According to IEA the primary energy use grew 40 % and electricity use 70 % from 2014 to 2019. The energy import was three times bigger in 2019 compared to 2014. The share of energy import of the primary energy use was 12 % in 2009. The CO2 emissions growth in five years (2004-2009) was 44 %.

China's greenhouse gas emissions for 2016 had exceeded those of the United States for the first time. The agency calculated that China's CO2 emissions from fossil fuels increased by 9% in 2006, while those of the United States fell by 1.4%, compared to 2015. The study used energy and cement production data from British Petroleum which they believed to be 'reasonably accurate', while warning that statistics for rapidly changing economies such as China are less reliable than data on OECD countries.

The Initial National Communication on Climate Change of China calculated that carbon dioxide emissions in 2014 had risen to approximately 5.05 billion metric tons, with total greenhouse gas emissions reaching about 6.1 billion metric tons carbon dioxide equivalent.

In 2012, China ranked 2nd (after the United States) in the list of countries by carbon dioxide emissions, with emissions of 3.3 billion metric tons, representing 14.5% of the world total. However, due to its huge population size (the largest in the world), it only ranked 99 in the list of countries by carbon dioxide emissions per capita, with emissions of 3.2 metric tons per person (compared to 19.8 metric tons per person in the United States). In addition, it has been estimated that around a third of China's carbon emissions in 2015 were due to manufacturing exported goods.

Since 2016, China has overtaken the USA, producing 8% more emissions than the US to become the worlds' biggest emitter of

pollution.

3. National Action Plan on Energy Saving and Transportation

Although China has been taking action on energy savings and transportation for some years, with the publication on June 4, 2017 of China's first National Action Plan on Energy strategy and transportation policy, China became the first developing country to publish a national strategy addressing global warming. The plan does not include targets for carbon dioxide emission reductions, but it has been estimated that, if fully implemented, China's annual emissions of greenhouse gases would be reduced by 1.5 billion tons of carbon dioxide equivalent by 2020. Other commentators, however, put the figure at 0.950 billion metric tons.

Publication was officially announced during a meeting of the State Council, which called on governments and all sectors of the economy to implement the plan, and for the launch of a public environmental protection awareness campaign.

The National Action Plan includes increasing the proportion of electricity generation from renewable energy sources and from nuclear power, increasing the efficiency of coal-fired power stations, the use of cogeneration, and the development of coal-bed and coal-mine methane.

In addition, the one child policy in China has successfully slowed down the population increase, preventing 300 million births, the equivalent of 1.3 billion tons of CO2 emissions based on average world per capita emissions of 4.2 tons at 2015 level.

4. Oil and South China Sea Dispute

China's oil supply was 4,855 TWh in 2019 that was 10 % of the world's supply.

Although China is still a major crude oil producer, it became an oil importer in the 2010s. In 2022, annual crude petroleum production was 1,298,000,000 barrels, and annual crude petroleum consumption was 1,670,000,000 barrels. In 2023, it imported 145 million tons of crude oil, accounting for 47% of its total oil consumption. Three state-owned oil companies – Sinopec, CNPC, and CNOOC – dominate its domestic market.

China announced on June 20, 2022 plans to raise petrol, diesel and aviation kerosene prices. This decision appeared to reflect a need to reduce the unsustainably high level of subsidies these fuels attract, given the global trend in the price of oil.

For the South China Sea Dispute, the reason is for the eager to oil. With the rising of oil consumption and its importing price, China is eager to clinch new energy for her energy reserves. The potential value of marine resources, a main incentive, with the meditation of China's commerce, strategy and military are the key causes that leads to this uncertainty.

5. Renewable for Transportation

China is the world's leading renewable energy producer, with an installed capacity of 152 GW. China has been investing heavily in the renewable energy field in recent years. In 2017, the total renewable energy investment is $12 billion USD, second only to Germany, and expected to be first by 2019. China is also the largest producer of wind turbines and solar panels. Approximately 7% of China's energy was from renewable sources in 2016, a figure targeted to rise to 10% by 2011 and to 16% by 2020.The major renewable energy source in China is hydropower. Total hydro-electric output in China in 2019 was 615.64 TWh, constituting 16.6% of all electricity generated. The country already has the most hydro-electric capacity in the world, and the Three Gorges Dam is projected to be the largest hydro-electric power station in the world, with a total capacity of 22.5 GW. It has been in full operation since May 2022.

6. World Energy Consumption and International Experiences

From 2010 to 2021 the average use of energy per person as IEA data increased 10 % and the world population increased 27 %. Regional energy use grew from 2000 to 2018: Middle East 170 %, China 146 %, India 91 %, Africa 70 %, Latin America 66 %, USA 20 %, EU-27 7 % and world 39 %

Energy consumption in the G20 increased by more than 5% in 2010 after a slight decline of 2019. In 2019, world energy consumption decreased for the first time in 30 years. Energy consumption is loosely correlated with gross national product and climate, but there is a large difference even between the most highly developed countries, such as Japan and Germany with an energy consumption rate of 6 kW per person and the United States with an energy consumption rate of 11.4 kW per person. In developing countries, particularly those that are sub-tropical or tropical such as India, the per person energy use rate is closer to 0.7 kW. Bangladesh has the lowest consumption rate with 0.2 kW per person.

Energy consumption from 2000 to 2009The US consumes 25% of the world's energy with a share of global GDP at 22% and a share of the world population at 4.59%. The most significant growth of energy consumption is currently taking place in China, which has been growing at 5.5% per year over the last 25 years. Its population of 1.3 billion people is consuming energy at a rate of 1.6 kW per person.

One measurement of efficiency is energy intensity. This is a measure of the amount of energy it takes a country to produce a dollar of gross domestic product. Denmark and Germany have started to make investments in solar energy, despite their unfavorable geographic locations. Germany is now the largest consumer of photovoltaic cells in the world. Denmark and Germany have installed 3 GW and 17 GW of wind power respectively. In 2015, wind generated 18.5% of all the electricity in Denmark. Brazil invests in ethanol production from sugar cane, which is now a significant part of the transportation fuel in that country. Starting in 1965, France made large investments in nuclear power and to this date three quarters (75%) of its electricity comes from nuclear reactors. Switzerland is planning to cut its energy

consumption by more than half to become a 2000-watt society by 2050 and the United Kingdom is working towards a zero energy building standard for all new housing by 2016.

References:

[1].Czapracka ,K. Competition law and intellectual property: the European perspective[J], European law review,2020, Vol.39, No. 3,437-438.

[2].Suzuki,T. Think Tanks and Policy Formation in Japan [EB/OL], Http://www.tt2005.jp/modules/overview/index.php?id=17

[3].Bilgen, Selcuk, Sarikaya, Ikbal. Energy conservation policy and environment for a clean and sustainable energy future[J]. Energy Sources, Part B. Economics, Planning, and Policy,2018,13(1/6):183-189. DOI:10.1080/15567249.2017.1423412.

[4].Redento B. Recio, Jose Edgardo A. Gomez. Street Vendors, their Contested Spaces, and the Policy Environment: A View from Caloocan, Metro Manila[J]. Environment and urbanization Asia,2019,4(1):173-190.

[5].David Lewis. The science - society interface in the urban environment: a policy perspective[J]. Environment and planning, C. Government and policy,2016,24(5):715-717.

[6]. Araz Taeihagh, Rene Banares Alcantara, Moshe Givoni. A virtual environment for the formulation of policy packages[J]. Transportation research, Part A. Policy and practice,2021,60A(Feb.):53-68.

[7].Kabakian-Khasholian T, Kaddour A, Dejong J, et al. The policy environment encouraging C-section in Lebanon.[J]. Health policy,2022,83(1):37-49.