Analysis on the restriction of oil use to environmental protection

Ping Sun, Junpei Li
School of Management, Tianjin University of Technology, Tianjin 300384, China

Abstract. In recent years, with the rapid development of the economy of various countries and the vigorous development of all walks of life, as one of the main raw materials of the products of major enterprises, the use of oil has also increased, but at the same time, it has caused a lot of repairable and irreparable hazards. This paper expounds the importance of oil for economic development and the current situation of oil, which is also strong. The importance of environmental protection is adjusted. The earth is the home for human beings to survive. The improvement on the natural environment is one of the bases of human survival. The restrictive factors of oil on the implementation of environmental protection policies are listed. After that, I put forward some suggestions, hoping that enterprises or governments can increase business investment in renewable energy, slow down the negative pressure of petroleum on the environment, and promote the harmonious development of human and nature.

1. The role of oil resources in promoting economic development.
Petroleum products can be divided into six categories: petroleum fuel, petroleum solvent and chemical raw materials, lubricant, paraffin, petroleum asphalt, petroleum coke, etc. Among them, the output of various fuels is the largest, close to 90% of the total output; various lubricants are the most, accounting for for 5% of the total output. Crude oil products play a very extensive role and function as the development of social economy. Petroleum products are energy suppliers, which mainly refer to gasoline, kerosene, diesel oil, heavy oil and natural gas produced by crude oil refining. They are the main suppliers of energy at present. The energy provided by crude oil products is mainly used as fuel to automobiles, tractors, airplanes, ships and boilers, and a small amount is used as civil fuel. Crude oil is also used in metal, inorganic nonmetallic materials and polymer synthetic materials are called three major materials. In addition to synthetic materials, petroleum products also provide the vast majority of organic chemical raw materials. In the field of chemical industry, in addition to chemical products provided by chemical minerals, the raw materials for the production of petroleum products play an important role in various departments. In addition, all industrial sectors are inseparable from crude oil products. The development of modern transportation industry is closely related to fuel to supply. Metal processing, all kinds of machinery of exception need all kinds of lubricating materials and other supporting materials, consuming a large number of crude oil products. Building materials industry is a new field of crude oil products. The development and promotion of new materials, new processes and new products are all accompanied by crude oil products. The most important aspect is that crude oil products promote the development of agriculture. Agriculture is the basic industry of our national economy. The nitrogen fertilizer provided
by the petroleum industry accounts for 80% of the total amount of chemical fertilizer. The popularization
and use of agricultural plastic film, the rational use of pesticides and various fuels required by a large
number of agricultural machineries have become the main force of the petroleum industry to support
agriculture. Therefore, oil can be used in many industries, which is one of the main conditions for the
development of industry and agriculture.

2. Use of oil resources.
Natural resources are all tangible and intangible things endowed by nature or left by predecessors, which
can be directly or indirectly used to meet human needs. Resources can be divided into natural resources
and economic resources. The whole nature that can meet human needs are natural resources, including
air, water, land, forest, grassland, wildlife, various minerals and energy, etc. Natural resources provide
human beings with material and space for survival, development and enjoyment. With the development
of society and the progress of science and technology, more and more natural resources need to be
developed and utilized. Oil is a kind of natural resources. In recent years, more and more private cars
lead to the increase in oil use and exhaust emissions, which is not conducive to air purification. In
addition, oil is not only such a simple environmental impact, which should be described as harm to
present. Pollution can be divided into three aspects: first, oil and gas pollution of the atmospheric
environment, which is manifested by the pollution of oil and gas volatiles and other harmful gases
caused by ultraviolet radiation of sun oil pollution, physiological reaction pollution; or burning to
generate chemical smoke, carcinogens and greenhouse effect, ozone layer destruction, etc. Second, soil
pollution. We don't need to explain here. We all know that where oil pollutes the soil, there is no life.
The third is the pollution of groundwater. The water resources we live in are so polluted that the local
cancer villages are all polluted again and again. The consequences of the oil pollution of groundwater
are increasingly severe. The corrosion and leakage of oil pipelines polluted the soil and groundwater
sources, which not only causes soil salinization and poisoning, but also leads to soil destruction and
waste destruction. Moreover, poisons can enter the food chain system through crops, especially
groundwater, and ultimately directly harm human beings.

3. Necessity of environmental protection.
Environmental protection is to study and prevent the deterioration of the natural environment caused by
human life, production and construction activities, and then seek to control, control and eliminate the
pollution and damage to various factors of the environment, and strive to improve the environment,
beautify the environment, protect the environment, so that it can better adapt to the needs of human life
and work. In other words, environmental protection is to use the theories and methods of environmental
science, while making better use of natural resources, to deeply understand the causes and hazards of
pollution and damage to the environment, to protect the environment in a planned way, to prevent
environmental quality deterioration, to control environmental pollution, to promote the coordinated
development of human beings and the environment, to improve the quality of human life, to protect
human health, and to benefit future generations. People live in the natural environment, so the natural
environment is the basic condition for human survival, and the material sources for the development of
production and prosperity of economy. Without the vast natural environment of the earth, it is impossible
for human beings to survive and reproduce. With the rapid growth of population and the development
of productivity, the rapid development of science and technology, and the continuous increase from / to
industrial and domestic waste emissions, the air, water quality, soil pollution is increasingly serious, the
natural ecological balance has been severely impacted and damaged, many resources are increasingly
reduced, and facing the risk of depletion; Soil erosion and land desertification are becoming more and
more serious. Food production and human health are seriously threatened. Therefore, maintaining
ecological balance and protecting the environment is fundamental issues related to human survival and
social development. In addition, environmental protection is an important part of China's sustainable development strategy, which to a certain extent determines China's development level. However, at this stage, although the state has strengthened the attention to environmental
protection and taken relevant environmental protection measures, with the increasing problems of industrial pollution, agricultural pollution and domestic pollution, these environmental protection measures also exposed some shortcomings. So for the government and environmental protection departments, we should re-examine the environmental protection. Environmental protection is of great significance of the sustainable development of human beings. But for some industrial enterprises, only pay attention to economic benefits, but ignore the protection of the environment, especially for some industrial enterprises, there are often some environmental pollution phenomena in the development process. For example, for chemical plants, thermal power plants, cement plants, steel plants and paper mills, some sewage will be produced in the production process. If it is not effectively treated, it will cause serious harm to the local water, soil and crops, and affect the living environment of people. In the aspect of agriculture, many pesticides will be used in the process of agricultural production. Although these pesticides can effectively control diseases and insect pests, they will also cause certain pollution to the environment. In addition, in the process of killing pests, pesticides will also bring certain impact on the natural enemies of pests, and then lead to ecological imbalance. Secondly, in agricultural production, some agricultural films are also used. These agricultural films belong to a kind of hydrocarbon, which are difficult to be degraded under normal conditions, resulting in soil hardening and adverse effects on soil ecological balance and crop growth. Domestic garbage includes plastic bags, disposable chopsticks, batteries, medical garbage, fast food boxes and waste garbage, all of which can not are decomposed to a certain extent, and will have a direct impact on the life, work and mood of the surrounding residents. For these wastes, there are many harmful substances. If these substances enter into the water body, they will cause water pollution; if they enter into the soil, they will change the nature and structure of the soil.

4. Prediction of oil resources usage
Some oil companies have predicted the global primary energy demand structure of the future. Total to agree with the IEA SDS forecast that the share of renewable energy in the global energy market will increase from 1.8% in 2017 to 15.5% in 2040. Shell, BP and Exxon Mobil forecast that the proportion of renewable energy in the world in 2040 will be 18.3%, 15.4% and 6% respectively through their own internal scenario analysis. In 2018, Statoil adopted three scenarios of reform, renewal and competition, and considered that by 2050, the proportion of renewable energy was 11.6%, 22.3% and 8.3% respectively. Although different oil companies have different prospects of the future energy structure, they all show that the share of renewable energy will increase. It is generally agreed that renewable energy will become one of the important sources of global primary energy. However, oil companies are also aware that although the development of renewable energy has a good prospect, there are many uncertainties of its development, large-scale commercialization still needs time, and rapid growth in the medium and short term can not meet the energy demand. Therefore, energy related technologies such as natural gas, carbon capture, utilization and storage (CCUs) are needed as a transition to provide time for large-scale commercialization of renewable energy. In 2020-2030, the average degree of Chinaapos ; soil dependence on foreign countries is greater than the current degree of dependence on foreign countries, which indicates that the contradiction between Chinaapos ; s oil supply and demand will be more acute in the future, and there is a greater risk in oil security . Chinaapos ; s rapid economic development . Degree, fluctuation of international oil price, change into energy consumption per unit of GDP, adjustment of industrial structure, urbanization process and oil production have certain impact on Chinaapos ; s oil demand.

5. Restriction factors of petroleum use on environmental protection
(1) At the same time, the use of oil ignores the sense of responsibility to protect the environment. With the expansion of economic growth mode, resource constraints are tightening, environmental pollution is serious, ecological problems are prominent and other issues are increasingly prominent. Environmental protection and oil to use are not separated. Both development and governance perspectives should be considered together. Due to the rapid economic development, the consumption
of oil continues to rise, ignoring the environmental damage caused by economic development. (2) Lack of business investment in renewable energy puts pressure on environmental remediation. In the future, oil and gas will remain the core business, although the investment of large international oil companies will gradually incline to renewable energy business. Statoil expects that investment in new energy solutions will account for 15% - 20% of total capital expenditure of 2030, with oil and gas as the main part.

**Table 1.** With oil and gas as the main part.

| Oil Company                          | Annual Investment Budget for Renewable Energy (US $100 million per year) | Total capital expenditure in 2018 (US $100 million) | Renewable energy investment as a proportion of total capital expenditure |
|--------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------|
| Shell                                | 10-20                                                                    | 240                                                | 6%                                                                    |
| Total                                | 5                                                                       | 221.85                                             | < 3%                                                                  |
| BP                                   | 5                                                                       | 250.88                                             | 2%                                                                    |
| Ernie                                | 10                                                                      | 102.15                                             | 10%                                                                   |
| Norwegian National Petroleum Corporation | 4                                                                       | 110                                                | < 4%                                                                  |

Environmental pollution is becoming more and more serious. While formulating environmental protection policies, there is no specific solution combining with specific environmental pollution problems, resulting in the coordinated development between resource use and environmental protection. (1) The fuzziness of environmental protection measures cannot solve the problem of environmental pollution. The goal of natural resources protection policy is gradually changing from serving economic construction to pursuing sustainable development. The recognition and utilization of resources is no longer prominent in economic value and property attributes, but more diversified and scientific. Gradually establish a system of space development and protection with use control as the core, and change from quantity and quality protection to quantity and quality control. Although the protection for / against natural resources has been highly valued by the central government, the problems of ecological environment in some areas are still prominent, which will cause serious irreversible damage to the ecological environment. The compensation for resource ecology needs to be further improved, and the compensation scope, standard, mode and system need to be improved. (2) Inadequate monitoring in the implementation of environmental protection policies. There is still a lack of necessary connection between different policy monitoring subjects, and there are too many gaps between various monitoring mechanisms. There is no corresponding national monitoring subject to coordinate the differences or disputes between the authority and the superior administrative organ. Although the authorities, judicial organs and higher administrative organs can monitor the local government apos; s environmental protection policies, there is no clear definition of the monitoring scope, procedures and penalties. Due to the lack of clear responsibilities and limits to supervision and control, the information about the work is wrong with each other. It has caused a lot of repeated monitoring and some "blind spots" of monitoring, which not only increases the cost of monitoring, but also. The monitoring efficiency is reduced.

6. Suggestions

6.1. **Strengthen the monitoring of the implementation of environmental protection policies.**
China&apos;s environmental policies are studied and formulated by the central government and implemented by local governments. Local governments can also formulate environmental policies that are used in local areas, but the environmental policies must be stricter than those of the central government. China should establish an incentive mechanism for the central government to effectively
implement environmental protection policies on local governments, including economic compensation and policy inclination, so as to mobilize the enthusiasm for local governments to implement environmental protection policies. In addition, the current assessment system of local governments and officials in China takes GDP as the main basis for their performance. In the implementation of the central environmental governance policy, local governments tend to choose low environmental standards or environmental policy tools to maximize the profits of enterprises, give tacit and practical support to the pollution behavior of enterprises, and even form a community of interests in local enterprises. Therefore, the performance evaluation of local governments and officials should not only be limited to economic indicators, but also to environmental governance.

6.2. Increase business investment in renewable energy.

The government or enterprises enter into the large-scale renewable energy power generation business, and directly enter the renewable energy field with less intersection with the original oil and gas business, such as large-scale wind power generation and solar power generation. We should also learn from the investment direction of international oil companies and select the investment direction suitable for our own companies to develop their business.

Table 2. Risk investment direction of international oil companies

| Oil Company                  | Investment direction                      |
|------------------------------|------------------------------------------|
| Total                        | Carbon dioxide and hydrogen              |
|                              | New energy sources                       |
|                              | Energy storage                           |
|                              | Smart Energy                             |
|                              | New traffic                              |
| Norwegian National Petroleum Corporation | Offshore wind power                  |
|                              | Solar energy                             |
|                              | Land Wind                                |
|                              | Energy storage                           |
| BP                           | Core business                            |
|                              | Advanced transport                       |
|                              | Biomass fuels and low carbon products    |
| Chevron                      | Oil and gas technology                   |
|                              | Emerging and alternative energy sources  |
|                              | New materials                            |
| Shell                        | Renewable Energy and Thermal Energy      |
|                              | Oil and gas                              |
|                              | Fuel and mobility                        |

Table 2. Risk investment direction of international oil companies

| Oil Company                  | Investment direction                      |
|------------------------------|------------------------------------------|
|                              | Carbon asset management                  |
|                              | Energy storage                           |
|                              | Digital                                  |
|                              | Communications and networks              |
|                              | Information technology                   |
|                              | Cross-industry solutions                 |
|                              | Fund                                     |

Solar energy - BP and shell made a large amount of investment in solar energy in the early stage. In the later stage, they sold assets to withdraw the funds, and in recent years, they returned to solar energy through M & A. In December 2017, BP announced a U.S. $200 million acquisition of 43% of light source, Europe's largest solar developer, and renamed the company light source BP. In January 2018, Shell announced to invest $217 million to acquire 43.83% of silicon ranch, a U.S. solar company, as its largest shareholder. Silicon ranch currently holds 800 megawatts solar projects, some of which have been completed, some of which have been signed or are under construction. Total has always been committed to the field of solar energy, which is the company's main business to achieve the goal of renewable energy accounting for 20% of the total business by 2030. Wind power - BP is one of the largest wind power producers in the United States, operating 10 wind farms in Colorado, Idaho, Indiana, Kansas, Pennsylvania, South Dakota and Texas, with a combined net power generation capacity of more than 1000 megawatts. Shell set foot of the wind energy industry in the United States in 2001. At present, it has 5 onshore wind power projects in the United States, 1 offshore wind power plant in the Netherlands,
and 3 wind power projects under development. After completion, the total installed capacity of these projects will exceed 5 GW.

7. Conclusion
Petroleum products play an important role in the development of social economy. It plays an important role in many industries such as agricultural industry. Through the restriction analysis of environmental protection in the process of oil use, we can understand the environmental problems caused by oil use. In addition to the lack of monitoring in environmental governance, the fuzziness of environmental protection measures also needs to be further improved, and more targeted environmental protection measures should be formulated. In addition, with the development of economy, the increase of oil consumption and the weak awareness of environmental protection of production staff, we need to further strengthen our ideological awareness. In addition, we should increase business investment in renewable energy to reduce the pressure on increasing oil utilization. Finally, the time and efficiency of natural environment restoration are not well coordinated with the production cycle of oil related industries, and more attention should be paid to the coordination level between the two in the future while economic development.

References
[1] Zhu Zihan, Liu Qiang, Guo Xuefei, et al. Research on renewable energy investment strategies and actions of international oil companies [J]. International oil economy, 2020, 28 (4): 54-61
[2] Han limeng, Jiao Yanwei. Analysis of the importance and specific measures of environmental detection in environmental protection [J]. Hubei agricultural mechanization, 2020 (05): 51
[3] Lu Fengzhi, Yang haochang. Industrial agglomeration and environmental pollution control: power or resistance [J]. Journal of Guangdong University of Finance and economics, 2020, 35 (01): 16-29
[4] Comprehensive report of our reporter. China has started to promote the system of paid use of all natural resource assets [J]. China government procurement, 2017 (03): 69-70
[5] Zhang Yansong, Guo Qiang, Dong Chengren. Current situation evaluation and Countermeasures of port oil pollution in China [J]. Henan science and technology, 2013 (23): 208-209
[6] Wang Yuexian, Guan Ying. Legal perfection of environmental policy implementation in China [J]. Chinese and foreign entrepreneurs, 2013 (07): 118-119
[7] Lu Qing, Guo Xinxin, Zheng Shiming. Government environmental governance capacity: influencing factors and evaluation system [J / OL]. Journal of Social Sciences, Hunan Normal University, 2020 (02): 87-95 [2020-06-08].