ENERGY SECURITY AND ROLE OF HEGEMON

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Түлхүүр үг: *нефть, эрчим хүч, АНУ-ын гадаад бодлого*

ТОВЧ ХУРААГУЙ: *Зохиогч тус өгүүлэлд Үндэсний Нефтийн Компаниуд нь нефтийн тогтсон үйлдвэрлэлийг өргөжүүлэх тал дээр илүү сайн ажиллаж буй бол, дэлхийн томоохон нефтийн компаниуд үнэ өртөгтэйгээр шийдвэр-гаргахаас зайлсхийж, өөрчлөгдөн буй улс төр, эдийн засгийн нөхцөл байдалд илүү уян хатнаар дасан зохицож хөгжих боломжтой учраас зах зээлийн хүчин зүйлээс хамааран шинэчлэлийн судалгааны ажлыг хийх илүү шаардлагатай болохыг илэрхийлэхийг зорьсон.*

Түүнчлэн, АНУ-ын засгийн газар нь тэдгээр нефтийн том компаниудыг судалгааны ажлаа хийх тогтвортой илүү таатай нөхцөөр хангах ёстой болж байгаа нь тус улс эрчим хүчээр хангагдах талаа бататгахын зэрэгцээ Ойрхи Дорнод болон ОПЕК-н бусад улсаас хамаарах хамаарлаа багасгах улс төр эдийн засгийн бодлогын илрэл болж буйг өгүүллийн үндсэн хэсэгт оруулсан болно. Эрчим хүчний боломж нөөцтэй бусад улстай холбоо тогтооож, эх үүсвэрээ олшруулах нь АНУ-ын хувьд ирээдүйд удаан хугацааны турш эрчим хүчний баталгаатай байдлын гол шийдэл болоод байна6

1. Introduction

The imbalance of supply and demand of oil is derived from the finite nature of oil while the demand is still growing with the economic growth of developing countries. China is one of the critical factors behind this soaring demand. The bigger the gap between decreasing supply and higher demand, the more oil crisis is likely to happen. Thus, the key in bridging this gap is to lower the demand of oil while maximizing the supply to sustain the level of growth; the essence of the problem is how much oil reserves we have left, and how long we can sustain the production level of oil until the demand for oil decreases when China starts soft or hard landing after its economic growth. The matter is how long we can sustain or delay the oil peak while developing new technologies.

Under the conventional way of oil production and reserve exploration, NOC (National Oil Company)s might do better in maintaining or maximizing the supply. This is because they have the advantage in terms of conventional way of oil production because they have more access and control over the new reserves with the government authority. However, at some point in the future, finding new oil reserves will become more difficult due to the finite nature of oil.[164] Even though NOCs find large amount of new reserves around the world, no one can assert whether explosive demand for oil of the developing countries, such as China, can be met by the conventional way of oil production and supplies. After China, there is India. The scale of these two countries' development especially that of China, has been and will be unprecedentedly overwhelming due to the size of the country.[165] Once developed, maintaining

[164] Buttonwood: "Feeling Peaky," *Economist*, April 21,2012.
[165] Asia's energy challenge, Asian Development Outlook 2013, ADB, www.adb.org

the heightened level of the standard of living will persist for a while thus the demand for oil will be relatively more inelastic compared to the other resources needed for life.

The key question here is whether the supply is indeed sufficient to catch up or go along with the China's demand level on the upward slope before the inflection point in the Hubbert's bell curve.[166] The essence of the problem is not the absolute amount of demand and supply of oil but the timing between the two factors over the inflection point; both supply and demand will pass the inflection point but there will be crisis when the demand passes the inflection point faster than supply. And the timing of demand passing the inflection point is highly likely to be consistent with the speed and path of the China's economic growth.

Thus, if China's economic development continues for a while as well as other developing countries, explosive demand for oil required for both the development and maintenance of the development will keep the consumption level of oil high. In such a situation, the supplies by NOCs, based on conventional way of oil production, have more advantages in terms of absolute amount of oil reserves. However, when conventional channels of oil supply start to face the limitation of their finite nature, the only possible instrument that can resolve the energy crisis is technology, technology is the key. And private oil companies such as supermajors can concentrate their capital and resources on the research and development of the new technology.

The nature of oil business is changing to technological development for alternative energy sources while still exploring existing oil reserves and trying to maximize the current oil sources through the development of new techniques for refineries. Many oil companies, both private and nation-owned, starts to invest their time and energy in developing alternative energies such as hydro, wind power. For example, Petrobras is one of the companies that is developing alternative energy sources. In the annual financial report of both Patrobras and Exxon-one is state-owned, the other is private company- investment in alternative energy sources are being emphasized although the proportion is not higher than conventional energy source development.[167]

2. More incentives for the development and R&D

One example of such new technological development is the finding of shale oil. Development of the shale oil brought dramatic change in the grim picture of the supermajors' future. New technology such as horizontal drilling made the industry overcome technical obstacles in the development of shale oil. Innovation of technology has been always extending the life-span of the existing energy resources and is still continuing.[168] Not only in developing new energy sources but in terms of commercialization, supermajors have advantages in pursuing active R&D according to their market incentives. Private companies have a more sensitive reaction than NOCs to the cost and benefits of the market making efficient resource allocation possible.

Second, speed matters. The decision-making procedure of private oil companies is much more rapid compared to that of the NOCs. Private oil companies show more sensitivity and quick reaction to the market incentive and the level of the cost and benefit. They also quit unnecessary investment once they judge the new development cannot meet their marginal

[166] In Deffeyes, *Beyond Oil: The View from Hubbert's Peak* (2005), pp. 3-51
[167] 1Q13 Annual Financial Report (USD), Petrobras, www.petrobras.com

[168] Knowledge of already discovered oil resources is not static, but increases over time through the expansion of scientific understanding of the field", Misperceptions and Problems Ahead, The Inner Secrets of Oil.

cost.[169] Such high speed in the decision-making gave supermajors more advantages in readjusting and adapting to the changes of global oil market.[170] Time matters in terms of the two following aspects; fast R& D and taking advantage of the position of the frontier. First, fast R&D is the key to the oil problem because saving time before it reaches the peak is the core to resolving supply side problems of oil. Fast R&D in crucial for earning time while developing alternative energy sources to transfer the demand from conventional to the new alternative energy sources- this is the most critical factor in preventing oil peak crisis. Second, speed matters also in terms of the advantage of the frontier. If it was land that one has to rapidly occupy to monopolize the benefit in the conventional oil industry, now it is technology and intellectual property such as patents that one has to take the lead to occupy the profits.

Third, having strong ties with the government is not always advantageous in developing the oil industry. Private oil companies have more autonomy from the state pursuing the logic of the market. Supermajors can have more flexibility and freedom to adjust and implement business plans and can also insulate themselves from the political problems compared to the NOCs which are strongly fused with the government.[171] Private oil companies have more autonomy from the state and this makes it possible for them to have higher efficiency in business. Market incentives are more effective for efficient allocation of resources. By concentrating their interest on market incentives, private oil companies can make their business planning more effective and realistic. They do not need to get involved in political issues-such as human rights, diplomatic relations- and can select the optimal business strategies for their profits decreasing transaction cost compared to the state-owned companies. This is also a critical matter of how much government intervention and back up is required-the role of a state.

Policy implication from the previously stated aspect is -Leave the supermajors to the balance of market, efficient mechanism of market incentives, but support them by minimizing the institutional restraints for their business and offering stable international environment for them not to have political obstacles.[172] For example, minimize the complicated procedure of land purchase, make patent registration faster, and do not cause problem with the Middle East. The reason that such a passive government intervention can work is because the key to the changing nature of oil industry is technology and it can be done most efficiently when we leave supermajors in the domain of the market. Profits are strong drive for the research and development of new technology and also for rapid readjustment to the changing demand of market.

Lastly and once again, technology is the key to determining the fate of the supermajors. Development of new technology, capability of the new oil resources such as shale oil and tar sands and alternative energy sources will decide the landscape of the future energy industry. One dramatic example is the development of shale oil in the United States. It changed the gloomy future of the World's energy supplies. According to the estimation of IEA, the U.S. will become a potential energy exporter by 2035.[173] This is the most striking case of how

[169] This is due to the nature of the characteristics of the oil industry. According to the Frankel, oil industry is investment oriented, consideration of up-front fixed cost is significant, and supply and demand elasticity is small. Also they diversify the level of profit loss through various channels. Paul Frankel, "The Changing Structure of the Oil Industry," p.36-37.

[170] Quick calculation of investment and sunk cost as a leverage of development heightens the speed of R&D and the companies face stagnated development procedure, Frankel, p.36

[171] Robert McNally & Michael Levi, "Volatile Oil Prices are Here to Stay, *Foreign Affairs*, July/August, 2011, pp. 100-111

[172] In the initial stage of development of shale oil, rapid purchase of land became an advantage for oil companies in occupying the ground and starting development. The fact the territory was an area without many residents also contributed to the advantage of development.

[173] World energy outlook 2012, International Energy Agency, 2012.

development of new technology can determine the energy security of one country and what made this possible was incessant efforts by the superrmajors. Another aspect is that government is not free from the voters. Re-election is everything in the politics and a failed investment by the mistaken energy policy cannot be excused by the voters.

The other aspect of the development of shale oil case is showing is that the technology can also offset and overcome the limitation or the side-effects from the new findings. For example, technologies are being developed to cover the defects of the shale oil such as polluted water. This was also possible because private companies are under the pressure of sunk cost and pressures from the shareholders.

3. International political environment of today

The nature of international politics of today is that the economy is more strongly fused with governance of the state and the security on a micro scale. Globalization also added linkage among countries in macro scale. Thus, the politics and economy of today's international relations is interwoven with these complicated interaction of both micro and macro scale of fusion within and outside the state between politics and economy through globalization.

Thus, rapid dissemination of economic influence from one country to the other country can spread formation of tension and economic crisis among other countries, which means there are more potential causes of conflicts and war. Oil is one of such source of intriguing conflict both in the area of economy and security because oil is, by nature, a commercial issue as well as security that are based on military equipments using oil. The problems related to security are two-fold. First, most military vehicles used in security, run on oil.[174] Second is that there is high military spending in countries that have large oil reserves, which shows how sensitive the flashpoints of war it could be.[175] Not only is oil the source in running one state's security, but the competition over the finite oil sources invite tensions and conflicts.[176] Thus, once problems related to oil occur, the dissemination of the shock is much faster and stronger when the characteristics of globalization are added.

Does technology strengthen or weaken the linkage between the state and the oil business? As nuclear weapons gave the power and made it possible for weak countries to go against, confront, or even threaten stronger countries, improvement of technology will make it possible for countries with scarce energy sources to rely less on countries with spare capacity, thereby shifting the center of the power from the Middle East to the other countries that develop such technology. Saudi Arabia might lose its position as a leader and its political influence and leverage and that will change the geopolitical landscape in the Middle East, which will directly affect the national interest of the United States. The Middle East has traditionally occupied one of the most critical parts in the U.S.' foreign policy but this situation might change and the U.S.' strategic partner in terms of energy security will change. It could be Asia, Europe, or somewhere else other than OPEC countries. Supermajors will have to fit themselves into these changing circumstances.

The more a country is dependent on particular business profits, such as Saudi Arabia with oil, the more the country's economic interest directly involved in the path of the industry,

[174] One of the strengths in the U.S. military power is its absolute capability of high technology that makes surgical strike possible minimizing the cost and casualties of the war. Such capability is based on the use of effective vehicles including fighting falcon and drones such as F-16s.

[175] Doran, "OPEC Structure and Cohesion: Exploring the Determinants of Cartel Policy," *Journal of Politics* 42, 1 (1980): p.93

[176] Doran, "OPEC Structure and Cohesion: Exploring the Determinants of Cartel Policy," *Journal of Politics* 42, 1 (1980): 82-101

which makes the success of the industry critical matter of the state. In other words, the interest of the oil business is interwoven with the critical national interest of the country - a linkage between a state and oil industry. Thus, the invention of new technology for alternative energy sources can weaken this linkage between the state and oil industry. In this sense, the new technology offered relatively more autonomous political power to the states that were so dependent on oil that they had to be tied by the political constraints such as the Middle East factors. [177]

4. Conclusion

In sum, what determines the future landscape of oil and energy industry is technology and it can work better in the domain of private market. And this is where supermajors should find their opportunities.

Autonomy of the industry from the state gives them flexibility and freedom from the political constraints. It is especially so when the crisis of the Middle East and OPEC countries' political instability threaten the security of our energy supplies.[178] Supermajors have been developing their business while dealing with these constraints by offsetting some defects of their new technology and active R&D. Technology will determine the fate of supermajors.

Finally, international relations of today, interwoven with the energy security in the current of globalization, is an object like a mobile requiring delicate balance of each component's weight that any one factor that can affect the change of balance can cause damage in stabilizing the gravity of the whole. The U.S.'s role as a balancer of the complicated combination of each factor's gravity is a key to determining the future of the energy politics. Supermajor's role in that general picture should be a positive stimulant through the incessant technological development and innovation.

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[177] Paul Frankel, "The Changing Structure of the Oil Industry," p.45

[178] About the suggestion for the possible paths for the U.S. policy, Morse and Jaffe suggest three policies; preemptive engagement, pursuit of strength of monopsony, and trying to change the rules of game. Edward L. Morse and Amy Myers Jaffe, *OPEC in Confrontation with Globalization*, p.87.

Among those three, preemptive engagement can be the most realistic and effective answer considering the safe soft power of the U.S. Trying too active and risky policies that can cause backlash effect should be reserved.

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