Climate Change and the Future of Oil

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Carbon Tracker, a British environmental non-government organization, warns that tough climate change measures may lead massive fossil fuel resources to become stranded or unrecoverable assets, forcing investors in relevant companies to face great financial loss risks. It is estimated that the world may have to hold energy-related carbon dioxide emissions between 2010 and 2050 to 0.57 trillion tons in order to achieve the 2°C target of the Paris Agreement at a probability of 80%. If fossil fuel reserves proven in the world are consumed, however, CO2 emissions may total 2.8 trillion tons. Therefore, only 20% of these reserves may be allowed to be consumed. If fossil fuel consumption is restricted to achieve the 2 °C target, a great part of proven fossil fuel reserves may become stranded assets.

Western countries have already taken measures to reduce coal consumption to help prevent global warming. The United Kingdom has come up with a plan to eliminate coal-fired power plants by 2025 while expanding gas, wind and nuclear power plants. In the United States where the shale revolution is progressing, the power generation market has been switching from coal to natural gas due to low gas prices and the Clean Power Plan. As a result, largest U.S. coal company Peabody Energy and other major U.S. coal miners that account for about 45% of U.S. coal production have filed for bankruptcy protection since the beginning of this year. Coal reserves already face a risk of becoming stranded assets.

International oil majors have raised opposition to the view that fossil fuel reserves may become stranded assets. They argue that it may be difficult to find any alternative for fossil fuels accounting for about 85% of global energy supply as energy demand in developing countries continues to increase and that natural gas may serve as a key bridge to a low-carbon society as substituting natural gas for coal contributes to cutting CO2 emissions.

Over a long term through 2050, oil reserves as well as coal reserves may become stranded assets as climate change measures are globally toughened. On the demand side, tougher vehicle fuel efficiency regulations and the accelerated spread of eco-friendly vehicles may force oil demand growth to substantially decelerate. In Japan and other developed countries, oil demand has already peaked out.

On the supply side, the oil reserve-production ratio (proven reserves divided by annual production) is about 87 years for OPEC countries against about 30 years for OECD countries. OPEC countries thus have a greater risk of seeing their oil reserves become stranded assets. For Saudi Arabia with the world's largest oil reserves, it is a rational policy to increase oil production for expanding its global market share while trying to realize price levels that allow oil to be used as long as possible.

As a matter of course, massive development investment is required to turn reserves into actual production capacity. As international oil majors have rapidly reduced upstream investment due to oil price plunges since 2014, the oil supply-demand balance is feared to tighten with prices spiking over a medium term. Crude oil prices will repeat spikes and plunges depending on global economic fluctuations, political and geopolitical factors in oil producing countries and other factors as in the past.

While the International Energy Agency assumes a scenario of a steep rise in crude oil prices over a long term, I think that crude oil prices will fluctuate within a range between $30 and $70 per barrel. This is because an oil demand peak has come into sight due to progress in climate change measures while the U.S. shale revolution is leading the world to go in the direction of resources oversupply rather than resources depletion. Former Saudi Arabian Oil Minister Sheikh Zaki Yamani said, "The Stone Age did not end for lack of stone, and the Oil Age will end long before the world runs out of oil." Technological innovation and climate change may accelerate the end of the Oil Age.

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