

## **Special Seminar on “Shifting Gears: Future of Transportation, Oil Demand and Geopolitics”**

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On July 20, a special seminar on “Shifting Gears: Future of Transportation, Oil Demand and Geopolitics” took place at the Soukairou Hall of the National Graduate Institute for Policy Studies (GRIPS) in Tokyo. The seminar was cohosted by GRIPS, the Institute of Energy Economics, Japan, the U.S. think tank Atlantic Council and U.S. consultant firm Eurasia Group to discuss what impact technological innovation would exert on future oil demand and the oil market and what impact such change would have on international politics, economics and geopolitics, as indicated by the title.

The seminar comprised three presentations – “Decarbonization, Transportation Innovation, and the Changing Oil Market” by Robert Johnston of Eurasia Group, “Geopolitics and a Changing Energy System” by Randolph Bell of Atlantic Council and “Will Oil Demand Peak? ” by the author – and the three presenters’ panel discussion. In the following, I would like to summarize points of the presentations and panel discussion that I view as important.

While various issues and challenges have been taken up in the global energy world, key topics attracting global interest since last year include peak oil demand. As policy developments including planned regulations on internal combustion engine vehicles in major European countries and China and initiatives for promoting the diffusion of advanced technology vehicles such as electric and fuel cell vehicles have been combined with relevant moves of automakers, the potential of a great change in the future of vehicles has attracted global attention. Particularly, hopes on the diffusion of electric vehicles grew last year, leading to an “EV boom.”

A consensus prediction had been that global oil demand would steadily increase in the future on robust growth in non-OECD countries and in the transportation (vehicles, ships and aircraft) and petrochemical sectors. Due to a growing recognition that the rapid, wide expansion of advanced technology vehicles would lead to a great change in oil demand in the future, however, the great change’s potentially diverse and serious impacts on oil demand have become a matter of global concern. A potential global energy transition through the innovation and diffusion of vehicle technologies has attracted global attention.

However, great uncertainties exist about the diffusion of advanced technology vehicles and future vehicle uses (including automatic/autonomous driving and car sharing). Also uncertain is how fast or strongly fuel efficiency would be improved for internal combustion engine vehicles that

would still be sold and owned massively in the future. However, a point emphasized at the seminar is that policies would be very important among drivers exerting influence on these uncertainties. It was pointed out that those policies include (1) environmental policies involving climate change and air pollution, (2) industry policies seeking to foster industries for vehicles and relevant advanced technologies and (3) energy security policies responding to price fluctuations and supply disruptions in the international energy market, which would all play key roles.

It must be noted that there would be two cases for these policies' effects on the diffusion and promotion of advanced technologies. In one case, policies would structurally and moderately (gradually) produce effects responding to problems subject to the three categories of policies. In the other case, some "shocks" would exert a dramatic impact to produce such effects. Global oil demand peaked in reality in 1979 and continued decreasing in the first half of the 1980s because of a global recession as well as large-scale, full-blown oil substitution policies triggered by the first oil crisis in 1973 in OECD countries that had accounted for most of global oil demand then.

Later, global oil demand turned up and has so far continued increasing, led by oil demand growth in non-OECD countries, as mentioned above. If some "shocks" trigger non-OECD countries' strong policies to greatly accelerate the diffusion of advanced technologies, oil demand may peak. Such shock may be related to environmental problems, geopolitical risks involving the fluid Middle Eastern situation or energy security.

Interestingly, participants in the seminar discussed "winners and losers" in a peak oil case from various viewpoints. In the peak oil case, global oil demand would weaken to hold down crude oil prices. This is a tough scenario for oil producing countries that heavily depend on oil revenues, while being a good one for oil importing countries. The case would be very advantageous for countries that possess and diffuse advanced technologies bringing about peak oil demand.

Even among oil producing countries, high-cost producers would be put into a relatively severer position than low-cost producers. Given future uncertainties, U.S. shale oil and other oil development projects for short-term investment recovery would have an advantage over those for long lead times and long-term investment recovery that would be put into a difficult position. As these various possibilities have been recognized, various effects have emerged on oil producing countries' economic diversification strategies to reduce dependence on oil revenues, on oil sector investment policies and oil price policies, working to move energy geopolitics.

Another interesting point of the seminar was that the new concept of "Geotechnology" was discussed. Who will take leadership in developing and diffusing not only advanced vehicle technologies subject to discussion at the seminar but also a wide range of advanced or innovative technologies for renewable energy, nuclear power generation, hydrogen and fuel cells, as well as such advanced technologies as artificial intelligence, blockchain, robotics and biotechnology, would be a key issue that would determine the 21st century's global order. The 20th century was the "century of oil" where the "controller of oil" was at the center of the global order. Those that control important strategic technologies to define the 21st century's energy transition innovation may become the next global order leaders. We now face a situation in which major countries or players

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are fiercely competing in the power game involving “Geotechnology”.

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