

## **Publication of “Future Map of Strategic Materials”**

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On June 8, my new book, titled “Future Map of Strategic Materials” (written in Japanese), was published by ASA Publishing Co. The book makes a holistic examination of geopolitics over strategic materials – oil, coal, natural gas, renewable energy, critical minerals, nuclear energy and hydrogen/ammonia – from the viewpoint of energy security and decarbonization on the premise of the world’s division symbolized by the confrontation between the United States and China and between the Western bloc and the China-Russia group. As indicated by the above-mentioned word “makes a holistic examination,” this is not any specialized book that details market and supply/demand analysis regarding those strategic materials. This book is designed to provide general readers, rather than relevant experts or business stakeholders, with views and perspectives on the whole future picture of strategic materials by taking advantage of charts and maps as well as a style that is as plain as possible. This is thus positioned as a kind of basic guidebook.

I authored “Dramatically Changing International Energy Situation” (published by Energy Forum Inc. on June 23 last year) and “Energy Geopolitics” (published by Asahi Shimbun Publications Inc. on August 12 last year). The two books used different angles to analyze energy security and decarbonization issues from the geopolitical perspective, considering dramatic changes in the international energy situation particularly since 2020. I fully recognize that my latest book “Future Map of Strategic Materials” has some overlaps with the two earlier books regarding awareness and discussions as far as the three books deal with key issues of the current international energy situation. However, my latest book features a greater focus on the escalation of the world’s division and my attempt to indicate how strategic materials would be positioned, how major geopolitical actors such as the United States, China, Russia, the European Union, the Middle East and the Global South would approach strategic materials and how the future of strategic materials would influence power balances between these actors.

Another feature of my latest book regarding the abovementioned perspective is that the book deals with not only oil, natural gas, coal as traditional targets of energy geopolitics analysis but also renewable energy, nuclear energy, hydrogen/ammonia and critical minerals. The concept of strategic materials in the book covers some strategically important technologies. Comparing the book’s issue awareness and discussions with the features and achievements of the Group of Seven Hiroshima summit discussed in my previous report “A Japanese Perspective on the International Energy Landscape (639),” I strongly feel that they reflect similar issue awareness. I think that my book features such relevance and timeliness as well.

Because energy and other resources as strategic materials are indispensable for everyday civic life and economic and industrial activities, a state occasionally makes strategic decisions to influence the supply-demand balance and supply chains of strategic materials in view of their supply and demand environment and prices to maximize the country’s national interests. In this sense, the

book defines strategic materials as exerting influence on the international balance of power. Regarding such strategic materials, the book recognizes the importance of current relevant issues such as the Ukraine crisis but gives priority to forward-looking discussions, without focusing on current issues excessively. The book is organized as follows:

Chapter 1 How are strategic materials seen in the world in turbulent times?

Chapter 2 Which countries are rich in resources? The latest map of strategic materials

Chapter 3 World division and strategic materials influence the national destiny

Chapter 4 Politicization of climate change issue: Strategic materials seen from decarbonization initiatives

Chapter 5 Japan's strategic materials and their future map

Chapter 1 defines oil, coal, natural gas, renewable energy, critical minerals, nuclear energy and hydrogen/ammonia as strategic materials subject to discussion in the book. Taking up oil and other strategic materials as examples, the chapter discusses geopolitical situations and market environments in which the importance of strategic materials grows, based on historical events like World War II and the first oil crisis, and the Ukraine crisis as a current grave issue. It serves as an introduction to this book by explaining the current situation where strategic materials attract global attention when energy security is prioritized amid the escalation of the world's division, with decarbonization becoming urgent.

Chapter 2 uses the latest reserves, production and consumption data to overview market conditions for the seven strategic materials as mentioned above and discusses particularly important selected topics. The selection is based on the importance of strategic materials as the book's theme and the viewpoint of geopolitics. Regarding oil, for instance, the chapter takes up the significance of the U.S. shale revolution and the United States' important roles in stabilizing chokepoints in sea lane and the Middle East. As for renewable energy, which is expanding rapidly and globally, the chapter discusses natural supply potential, cost differences, intermittent supply issue, China's huge presence in renewable energy consumption, and relevant industries. Regarding nuclear energy, which is now attracting global attention again, the great presence of China and Russia is discussed. On critical minerals that are indispensable for future energy transition, the chapter takes up concern over a tighter supply-demand balance and price hikes amid rapid growth in demand and unevenly distributed sources for resources and refining/processing services from the geopolitical viewpoint. It also describes how major countries are taking advantage of their respective strengths and characteristics to expand the use of hydrogen/ammonia as hopeful clean fuels and develop relevant supply chains.

Chapter 3 analyzes the current situation where the escalating division of the world further enhances the importance of strategic materials, overviews major countries' relevant strategies and discusses issue awareness, crisis consciousness and national strategies of major actors such as the United States, China, Russia, the European Union, the Middle East and the Global South to tackle problems regarding strategic materials. In discussing specific actors' relevant strategies, the chapter focuses on issues that are viewed as particularly important from the viewpoint of this book's title, "Future Map of Strategic Materials," as Chapter 2 does.

Chapter 4 takes up decarbonization as a factor exerting great influence on the future of strategic materials, discussing how decarbonization would influence the importance of each strategic material. It emphasizes the impact of decarbonization on future demand for fossil fuels such as oil, coal and natural gas, as well as the importance of fossil fuel decarbonization. The chapter also considers how the growing importance of renewable energy, nuclear energy, hydrogen/ammonia and

critical minerals amid the decarbonization trend would influence the world's division and geopolitics.

Chapter 5 discusses how Japan should deal with strategic materials in the dramatically changing international situation. It also considers the “strategic materials” Japan could possess and points out the significance of domestic and international strategies for using those strategic materials. In this regard, the chapter notes that it is extremely important for Japan to enhance technological and rulemaking initiatives for its future.

I would be pleased if my book contributes to stimulating public interest in the future of strategic materials.

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