

Challenges for Asian Energy Markets as a Gravity Center of the World

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1. Asia Influences Global Energy Situation

The gravity center of the international energy market is shifting to Asia. As a matter of course, the United States, Europe, Russia and the Middle East still occupy important positions in the world and will continued to do so. However, no one can deny the rising relative importance of Asia including Japan, China, India, South Korea and the Association of Southeast Asian Nations. Asia's share of global primary energy consumption jumped from 14% in 1970 to 41% in 2014. As Asian energy demand growth centered on coal, Asia's share of global carbon dioxide emissions increased rapidly from 15% to 47% during the same period.

Asia's importance will continue to increase over a long term. For example, IEEJ's "Asia/World Energy Outlook 2015" forecasts that about 70% of global energy demand growth will come from Asia. No one can talk about global energy problems without discussing Asia.

As Asia is expected to drive global growth and energy demand expansion, the recent economic deceleration in Asia, particularly in China, is exerting great impacts on the global economy and energy market. Fears about the Chinese economy's deceleration were behind crude oil prices' decline to the third bottom during the latest downward trend. As well as the U.S. shale revolution as a supply side change, China's economic deceleration as a demand side change has been among factors behind oversupply and weak prices of coal and liquefied natural gas in the world. The future course of the international energy market depends on demand recovery in Asia including China.

2. "3 Es plus S" as Asian Energy Challenges

In Asia as the gravity center of the world, various energy problems have been emerging as urgent and medium to long-term challenges. Energy and environmental problems differ from country to country in Asia that features diversity in economic development, politics and resource endowments. On a macro basis, however, the whole of Asia faces very great common challenges regarding the so-called 3 Es plus S -- energy security, environment protection, economic efficiency and safety.

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(1) Energy security

The basic energy security problem is Asia's dependence on energy imports. In 2014, Asia depended on net imports for 23% of total primary energy supply but for as much as 72% of oil supply. The percentage for gas stood at 22% after a sharp rise in recent years. A major oil and gas exporter to Asia is the Middle East plagued with complex and serious geopolitical risks on which no optimism can be warranted. If Asian energy demand and imports expand in the future, how to secure stable energy supply will become a key challenge. Energy security is a particularly important challenge for Asia, unlike the United States that is heading for energy self-sufficiency through the shale revolution and Europe that features slumping energy demand growth. Asia is required to enhance supply security not only for oil but also for gas/LNG in which interest is growing globally. Supply security also involves safe transportation and sea lanes as international trade expands.

For stable energy supply, both sufficient volume and reasonable prices must be secured. In this sense, it is important to resolve the so-called Asian premium problem for LNG prices. Asian LNG consuming countries must take advantage of the present buyer's market for negotiations with LNG producers and exporters. Asia is also required to diversify energy supply and import sources through the exploitation of U.S. shale and Russian resources and promote energy conservation and non-fossil energy sources. It is important for Asian countries to pursue energy cooperation while enhancing the resilience of their respective domestic energy supply arrangements in response to the deterioration of energy problems. They must also strengthen efforts to address new risks such as cyberattacks.

(2) Environment protection

The basic environmental problem in Asia is the region's heavy dependence on coal. In 2014, coal accounted for a dominant 52% of primary energy consumption in Asia. This is because large coal consumers including China and India have satisfied their robust energy demand with domestically produced, abundant and cheap coal. Due to the heavy dependence on coal, Asian environmental problems have grown serious. How to hold down CO₂ emissions is set to become a key challenge for Asia as its energy demand expands.

As the 21st Conference of Parties to the United Nations Framework Convention on Climate Change, or COP21, produced the Paris Agreement to reduce greenhouse gas emissions, Asian countries as well as others submitted to the United Nations their respective intended nationally determined contributions, or INDC, offering their respective GHG emission reduction targets and measures. Individual INDCs differ widely in ambitiousness. Under present INDCs, however, GHG emissions will be close to business-as-usual levels instead of being reduced substantially. However, it is significant that major GHG emitters including China and India participated in the Paris Agreement that calls for revising GHG emission reduction targets every five years. In the future, the steady implementation and enhancement of GHG emission reduction plans are a key challenge for Asia. Asian countries will have to reduce their dependence on coal and promote low-carbon energy. Economically rational renewable energy use, safer nuclear power plants and thorough

energy conservation will hold the key to reducing GHG emissions in Asia. The region must also promote the use of natural gas as a clean fossil fuel, develop and diffuse clean coal use technologies and tackle carbon capture and storage/use as a long-term challenge.

These measures are important for China and India to address the urgent problem of PM2.5 and other air pollution, as well as climate change. They are urgently required to enhance environment protection measures while paying attention to the fact that the reduction of dependence on coal can trade off with energy security and economic efficiency.

(3) Economic efficiency

Asia's energy sector has mostly been put under government regulations the level of which differ greatly from country to country. State-run companies' monopoly and direct government control on energy prices (subsidies to lower prices) are also seen, indicating a great challenge from the viewpoint of adaptation to market principles.

In Asia, Japan has deregulated electricity and gas markets ahead of other countries. Japan's implemented and planned measures to fully deregulate electricity and gas retail and unbundle "distribution" from "production/retail" have attracted interest from other Asian countries. This is because China, India, South Korea, Taiwan and ASEAN are planning to reform their energy markets as well. In this sense, it is important for them to learn lessons from European, American and Japanese experiences for market liberalization in a bid to develop more efficient energy markets. Given that energy security and environment protection have externality and cannot be left to market forces alone, however, appropriate energy and environment policies must be implemented. In view of the significance of energy security and environment protection, Asian countries must pursue the best mix of market principles and policies.

Pursuit of efficient markets should not be limited to domestic markets. It is important for Asian countries to pursue trans-Asian markets that function well throughout the region. Particularly, Asian countries are required to form efficient and well-functioning markets including hubs for LNG on which great expectations are placed as a clean fuel. Therefore, Asian countries should cooperate in removing restrictions on destinations in LNG transactions and other impediments to market forces.

(4) Safety

Nuclear energy is an important baseload electricity source that is quasi-domestically produced energy and free from carbon dioxide emission at generation stage and can efficiently generate massive electricity. It is expected to make great contributions to the 3 Es. In Asia that sees robust electricity demand growth while being plagued with its heavy dependence on coal, there are many plans to expand nuclear energy use.

As a matter of course, the Fukushima accident has exerted great impacts on Asia. Japan has revised its energy policy, while South Korea and Taiwan have seen growing views critical of nuclear energy. Safety enhancement, public acceptance improvement and many other challenges exist in regard to the nuclear energy use. Meanwhile, China, India and ASEAN are implementing

and considering a large number of nuclear power plant construction plans for the abovementioned reasons. Exerting great influences on future Asian nuclear energy use will be the enhancement of Asia-wide and worldwide cooperation in promoting safety measures based on lessons from the Fukushima accident, establishing and operating appropriate nuclear regulation systems and enhancing emergency response capacity.

Nuclear security and safeguard as well as safety are important in regard to Asia's nuclear energy use expansion. The 3 S's (safety, security and safeguard) must be pursued simultaneously.

Conclusion

As Asia grows more important in the world, its energy challenges and strategies become key factors to shape the global landscape. For the immediate future, concerns over China's economic deceleration and other downside risks are actual important problems. Over a medium to long term, energy demand is sure to expand in line with economic growth and social development in China, India and ASEAN countries. The "3 Es plus S" in this regard are inevitable challenges for Asia's sustainable development. Asian countries' future initiatives under their cooperation will shape and transform the future of energy and environment problems in Asia and the world.

Writer's Profile

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Joined IEEJ in 1986. He holds PhD in 2001 from University of Dundee, Scotland. He has held many senior positions in IEEJ, including Head of the World Oil & Energy Group, Senior Research Fellow, Energy Strategy Unit. He has served as a committee member of energy policy related councils and advisory committees of Japanese government in many occasion. His specialized field of research is: energy security issues and geopolitics of energy; and analysis for global energy market and policy development with emphasis on the Asia-Pacific region. He has authored numerous publications in the area of energy economics.