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2015 World Energy Investment Shown in IEA Report

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On September 14, the International Energy Agency published a report titled "World Energy Investment 2016." The IEA provides numerous reports on energy problems around the world, including the flagship publication of World Energy Outlook. However, the latest one is the first IEA report focusing on world energy investment. This report comprehensively analyzes energy investment realities globally and by region, by energy source and by sector, based mainly on data for 2015. It also analyzes the impact of energy price falls on investment and clean energy investment for climate change measures. The following summarizes key points of world energy investment as indicated in the IEA report.

The first point attracting attention is that world energy investment in 2015 declined by 8% from the previous year. Usually, energy investment expands as the energy market (demand) grows. Investment is required for production, transportation, conversion, distribution and consumption of each energy source. Without such investment, energy could not be used at present and in the future.

The world's primary energy demand growth in 2015 was limited to around 1% due to global economic growth deceleration. However, demand was still expanding. In such situation, world energy investment in 2015 totaled $1.83 trillion, posting an 8% fall from the previous year as noted above. The largest factor behind the decline was a substantial drop in upstream oil and gas investment. In particular, a decline in investment in the United States was influential. It may be needless to say that the investment decline directly reflects the grave impact of the crude oil price plunges seen since the second half of 2014 on energy investment. The drop indicates how great the impact of energy price changes on investment is.

Second, China replaced the United States as the world's largest energy supply investor due to the substantial drop in U.S. oil and gas investment. While energy demand growth in China has been decelerating under the "New Normal" economy, electricity sector investment has still been expanding. As a result, China's energy supply investment in 2015 reached $315 billion, accounting for 17% of the global total. In the United States, which remained the world's largest investor in energy supply for three years on end before reducing oil and gas investment in 2015, energy supply investment came to $281 billion, capturing 15% of the global total. Following China and the United States in the energy supply investment ranking were the European Union (accounting for $141 billion or 8% of the global total), Russia ($83 billion or 5%) and India ($66 billion or 4%). An interesting point is that the five largest investors commanded as much as 48% of the global total.

Third, oil and gas investment accounted for 46% of the global total energy investment in 2015. Upstream oil and gas investment alone totaled $583 billion, accounting for 33% of the global total. Investment in fossil fuels including coal captured 55% of the global total. Important is the fact that fossil fuel investment captures a great part of total energy investment in 2015. As noted above, however, oil and gas investment declined substantially due to oil price plunges, leading the fossil fuel sector to reduce its share of the global total energy investment from 61% in 2014 to 55%. In place, the non-fossil energy sector expanded its share. It is noteworthy that while oil price plunges had a very great impact on fossil fuel investment, there was an investment shift from fossil fuels to non-fossil energy as a concurrent.

Global upstream oil and gas investment in 2015 totaled $583 billion, posting a large decline of 25% from the previous year. The investment in this sector is expected to drop again by 24% in 2016. We must pay attention to the fact that the substantial reduction is attributable primarily to a cut in unit investment costs. While upstream oil and gas investment in North America including the United States in 2015 plunged to less than half the 2014 level, such investment was robust in the Middle East and Russia, where development and production costs are relatively low. While private sector companies substantially reduced upstream oil and gas investment, state-run companies in such regions as the Middle East and Russia expanded such investment.

Fourth, electricity sector investment was robust. Investment in the power generation sector in 2015 totaled $420 billion and that in the network sector, including electricity transmission and distribution, came to $260 billion. The two sectors' combined investment accounted for 37% of the global total energy investment. Particularly, investment in the network sector scored a steep increase of 14% from the previous year. Renewable energy power generation investment reached $288 billion, accounting for 70% of the total power generation sector investment. Nuclear power generation investment, including massive investment by China, rose to a 20-year high of $21 billion. Investment in non-fossil electricity sources was thus robust. Meanwhile, investment in natural gas power generation plunged by 40%. Investment trends thus differed from electricity source to source. The IEA report noted that most of the power generation investment came in non-deregulated markets or markets having mechanisms to manage investment recovery risks. This point is also interesting.

Fifth, the report importantly indicates that investment in sectors contributing to carbon emission cuts, including $313 billion in renewable energy and $221 billion in energy consumption efficiency improvement, accounted for a large weight. Combined investment in nuclear power generation, renewable energy and energy conservation captured 30% of global energy investment in 2015. While investment priority is given to fossil fuels, with fossil fuels accounting for a large part of energy supply, investment in non-fossil fuel sectors is steadily implemented even at present. As a result, the global energy supply-demand structure will move in the direction of lower carbon emission. However, the report indicates that the achievement of the so-called 2°C target would be very challenging under the present energy investment conditions and pace, despite steady progress in lower carbon emissions.

Energy investment determines the energy supply-demand structure at present, and more importantly, for the future. We will have to closely watch how energy investment will be implemented under the influence of energy prices, energy and environment policies, and advanced technology development.

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