

How to Interpret Two Low Oil Price Scenarios

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On November 10, the International Energy Agency released its flagship report World Energy Outlook 2015. The WEO is the IEA's long-term energy supply and demand outlook that is released every November and attracts global attention. Giving consideration to various uncertainties surrounding the international energy situation, the WEO usually provides three scenarios to analyze long-term energy supply and demand. The first is the New Policies Scenario seen as the central scenario in which each country will implement energy and environment policies that are about to be adopted. The second is the Current Policies Scenario in which no major changes will occur to the past trends. The last one is the 450 Scenario to analyze an energy supply-demand structure to limit the greenhouse gas concentration to 450 ppm (parts per million).

But the latest WEO features a Low Oil Price Scenario that focuses on the impacts of the crude oil price plunge. The WEOs for 2011 to 2014 assumed high crude oil prices as these prices then remained above \$100/bbl. But crude oil prices plunged in the second half of last year and have remained slack since then. Given the "New Normal" in the crude oil market, it is very timely for the IEA to consider, analyze and publish how the low oil prices would influence the international energy market over a long term through 2040.

In fact, the Institute of Energy Economics, Japan, also published its analysis of a Lower Price Scenario as one of the most important topics for its long-term supply and demand outlook, "Asia/World Energy Outlook 2015," one month ago in view of the New Normal. Other representative energy outlooks, including the World Oil Outlook by the Organization of the Petroleum Exporting Countries and the International Energy Outlook by the U.S. Energy Information Administration, may likely include the recent crude oil price plunge as a major topic. In the following, I would like to compare the IEEJ and IEA low oil price scenarios and consider their respective characteristics and significance. This is because the two scenarios, though commonly focusing on the impacts of low oil prices, have interesting differences.

First, low oil prices assumed by the IEA and IEEJ are somewhat different. The IEA assumes the benchmark crude oil price at \$80/bbl for 2020, \$113/bbl for 2030 and \$128 for 2040 in the New Policies Scenario and at \$55/bbl, \$70/bbl and \$85/bbl in the Low Oil Price Scenario. The IEEJ puts the price at \$75/bbl for 2020, \$100/bbl for 2030 and \$125/bbl for 2040 in the Reference Scenario and at \$70/bbl, \$75/bbl and \$80/bbl in the Lower Price Scenario. Over a long term, the price is projected to rise back to around \$80/bbl in both low price scenarios. For 2020, however, the

IEA assumes a weaker price than the IEEJ.

But more interesting are differences in preconditions for low oil prices and analysis results rather than assumed price levels. Supply side preconditions for low oil prices assumed in the IEA and IEEJ scenarios are similar. Both assume OPEC's maintenance of its current strategy giving priority to market shares and the promotion of U.S. shale and other unconventional oil development even at low oil prices. Both scenarios also refrain from assuming oil supply interruptions emerging from geopolitical risks in major oil suppliers including the Middle East. But the IEA and IEEJ differ over demand side preconditions. The IEA, though recognizing the possibility of oil demand growth being restricted by the world economy's short-term slowdown and developing countries' reduction of petroleum product subsidies in line with the crude oil price plunge, basically assumes that low oil prices may stimulate oil demand growth to expand over a long term. In contrast, the IEEJ basically assumes that global oil demand may be restricted due to long-term effects of energy conservation and alternative energy promotion over a long term.

In the IEA's Low Oil Price Scenario, global oil demand in 2040 will expand to 107.2 million barrels per day, 3.7 million b/d more than 103.5 million b/d in the New Policies Scenario. Factors behind the expansion will include low prices' stimulation of demand and the reduction of incentives for energy conservation and alternative energy promotion. In the IEEJ's Lower Price Scenario, global oil demand in 2040 will be limited to 100.4 million b/d due to energy conservation and alternative energy promotion, 13.3 million b/d less than in the Reference Scenario and 6.8 million b/d less than in the IEA's Low Oil Price Scenario. The difference leads to gaps in the world's oil demand structure and economic implications.

The IEA's Low Oil Price Scenario envisages the world's growing dependence on OPEC oil to meet expanding demand. Although an increase in non-OPEC oil output including U.S. shale oil is assumed to play a role in meeting expanding demand over a medium term, the world is projected to have no choice but to increase dependence on OPEC over a long term. OPEC's share of global oil output is thus estimated to expand from 40% in 2014 to 48% in 2030 and to 51% in 2040. The OPEC share is thus projected to recover levels above 50% recorded in the 1970s. The IEA scenario thus indicates that the Middle East and its stability will be significant for the international oil market. In contrast, the IEEJ's Lower Price Scenario indicates low oil prices' great negative impacts on the Middle East and Russia as traditional major oil producers, which slightly differ from the category of OPEC. Due to restricted demand and the promotion of unconventional oil development, the Middle East's oil output is assumed to be limited to some 40 million b/d in 2040, about 10 million b/d less than in the Reference Scenario, accounting for 40% of global oil output. The share is thus expected to remain unchanged from the present level. The slackening oil production (and exports) and relatively lower oil prices would work to reduce the Middle East's net crude oil export value in 2030 by \$457 billion and its gross domestic product by 3% from the Reference Scenario.

The IEA and IEEJ low oil price scenarios thus have some similarities and interesting differences. This may be because the IEA and IEEJ have different analytical viewpoints. Roughly, the IEA gives a warning to oil consuming countries, while the IEEJ sets off an alarm bell for oil

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producing countries. Each presents significant issues and implications for analyzing the future energy situation.