

**Japan's Additional Oil/LNG Demand under Electricity Supply/Demand Measures  
and International Energy Market**

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On April 26, our institute released an analysis that estimates Japan's additional demand for 110,000 to 140,000 barrels per day in oil and 6.2-8.6 million tons in LNG in FY2011 under electricity supply/demand measures after the March 11 earthquake-tsunami disaster. The estimated additional demand figures represent increases from the levels for FY2009. While the disaster has caused wide-ranging great problems with Japan's energy supply/demand structure, our analysis has focused on short-term fuel procurement problems for the immediate future (FY2011). A question behind this analysis has been how much the additional demand would be when oil and gas thermal power generation is required to increase under electricity supply/demand measures toward the attention-attracting summer demand peak and thereafter, or what problems there would be regarding the procurement of fuels. Another important question is what implications the emergence of Japan's additional demand would have on the international energy market.

As various uncertainties exist, many preconditions must naturally be set for estimating additional demand. In our estimation, we have separated (A) additional oil and LNG demand from Tokyo Electric Power Co. and Tohoku Electric Power Co., which have many power generation facilities hit by the disaster, from (B) the other additional demand. For the purpose of this brief paper, details of the assumption will be skipped here. However, regarding (A), key elements for the estimation include the two companies' specific oil and LNG thermal power plants available for operation, their potential capacity utilization rates and their thermal efficiency. Then the element (B) was divided further into two – (a) additional demand from power utilities other than Tokyo and Tohoku and (b) the other additional demand. Regarding (a), we have assumed that utilities would have to expand thermal power generation if regular checkups or scheduled maintenance works on nuclear reactors are prolonged to delay their restart. We have also assumed that they would use coal, LNG and oil thermal power generation facilities in that order to cover electricity shortages if the restart is postponed for one month. Regarding (b), we analyzed demand from auto-producers (private power generators) using oil and estimated potential additional oil demand based on past developments. Combining these estimates, we have provided the above estimates – 110,000 to 140,000 bpd in oil and 6.2-8.6 million tons in LNG. The estimated additional oil demand is equivalent to 3-4% of Japan's oil demand (fuel oil sales) in FY2009 and the additional LNG demand amounts to 9-13% of Japan's LNG imports in the year. These percentages may be viewed as significant.

However, the international oil market can be expected on a macro basis to sufficiently absorb the estimated additional demand in Japan. The additional demand is far smaller than the international oil market size of nearly 90 million bpd and the international LNG market size of more than 180 million tons. The global oil supply buffer, including surplus crude oil production capacity, surplus petroleum products supply capacity (surplus oil refining capacity) and oil inventories, is large enough to cover the additional demand in Japan. Global LNG supply capacity including Qatari facilities has expanded while demand has slowed down on the financial crisis. Furthermore, the flexible spot LNG market has grown to more than 30 million tons. The overall global LNG market is great enough to cover the additional Japanese demand. In fact, such resource-rich countries as Qatar, Indonesia and Russia have offered additional LNG supply to support Japan after the disaster, while LNG purchasers like South Korea's KOGAS have proposed some LNG transfers to Japan. Given these points, the international energy market can be expected to respond to the additional Japanese demand. Japan's additional oil and LNG procurement can be viewed as feasible.

Nevertheless, the additional demand and procurement have various problems. First, the additional demand is based on various preconditions and can shift dramatically depending on changes in these preconditions. This means that additional demand could be far more (or less) than our estimates. Second, the additional procurement, though expected to have no overall or macro problems, could face micro business problems. If the additional demand and procurement concentrate in a certain short period of time, for example, the supply-demand relationship may tighten partially. Particularly, attention may have to be paid to the supply-demand balance in a low-sulfur crude oil market (particularly for direct crude oil burning) that is relatively small in size. The procurement's concentration in the spot LNG market could also trigger a tighter supply-demand balance. Apart from the overall supply capacity, we may have to pay attention to potential constraints on the timely transportation of appropriate amounts. Fine-tuned considerations and coordination may be required for arranging the transportation of fuel oil with domestic ships and for securing LNG tankers and their appropriate acceptance at the receiving ports and terminals. Third, the energy market now sees crude oil price spikes on the destabilization of the Middle East and North Africa situation and ensuing LNG price hikes. The additional procurement is feasible but may have to be implemented under such tough market conditions. While the current international oil and LNG market situation has great uncertainties, Japan sees the emergence of additional demand and is required to secure its stable procurement of additional oil and LNG under such market conditions. In this sense, all relevant energy industry people and energy policy makers will be required to take measures and make efforts to tackle the additional procurement.

As noted above, our estimates are based on various preconditions. Depending on actual developments, these preconditions themselves may have to be examined carefully. It is difficult to make any comprehensive estimation covering all problems. In this sense, such estimates may have to be reviewed from various angles and improved appropriately. While the latest estimation has focused on supply/demand measures and relevant fuel procurement for the immediate future, it is important to make estimates and analyses regarding medium-term problems over the next three to five years and even longer-term issues. While the Japanese problem attracts global attention as an important factor exerting a great impact on the international energy market, we may have to enhance our analysis on the overall international energy market and Japan's stable procurement of energy resources.

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