

A NATURAL GAS TRADING PLATFORM FOR JAPAN

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Overview

This study proposes a new method for creating spot and futures market for natural gas, using what we refer to as “open access tankers.” This idea is motivated by the regulatory regime of “open access” natural gas pipelines in the United States.

Japan, the largest consumer of liquefied natural gas (LNG) in the world, is now considering restructuring its natural gas markets to allow competition. There are, however, no spot or futures markets for natural gas in Japan, and apparently limited opportunities to create such markets. Without a spot market, it is difficult for competitive market participants to engage in price discovery, or to write contracts that effectively cover risks (include weak bargaining power against sellers). It is also difficult for these parties to operate markets for the storage of natural gas, which is important because supplies of and demand for natural gas are not coincident.

Without any transparent wholesale markets in East Asia, LNG prices are not determined directly by natural gas supply and demand, being often formed on the basis of a formula linking the price of LNG to the price of crude oil. If there are effective spot markets for natural gas in East Asia like the market based at Henry Hub, Louisiana, in the United States, LNG prices would be determined directly by supply and demand. Therefore, focusing on Japanese gas market, we will consider a new method for creating a spot market.

Methods

We envision a plan for a market for open access tankers as follows: FA consortium of energy buyers from Japan would be established, under the direction of the Japanese government. Each buyer would contribute an amount to start the consortium, and shares in the consortium would be a function of how much each owner paid. The quantity of gas in a tanker would be broken down into relatively small units. Fourth, buyers at each delivery point would submit schedules of bids for natural gas, in the same way that suppliers submit bids in U.S. electricity markets. Fifth, bids from each delivery point would be aggregated. The port that has the highest clearing price, after accounting for delivery costs, would be where the gas would be delivered. This price, minus any additional cost of shipping to this port from the lowest cost port, would be the “spot price.” Only Japanese gas consumers could purchase this LNG product, to avoid manipulation. Purchases related to the open access tanker would have to be carefully monitored by the Japanese government.

Hedging would take place in at least two different ways. First, a futures market could be established based on the spot price described above. Second, shares in the consortium could be tradable. Either and both approaches would allow consumers to hedge their risks. Producers would also be able to hedge on this futures market.

Under this plan, tankers leased by the consortium would be the equivalent of open access pipelines.

The tanker owners would be paid for their services, but would not be committed to supply a particular firm.

Results and Conclusions

A natural gas trading hub is crucial if natural gas restructuring is to occur in Japan. The fragmented pipeline system in Japan does not allow for a land-based system. We therefore proposed a tanker-based system. If there are effective spot markets for natural gas in East Asia like the market at Henry Hub, Louisiana, in the United States, LNG prices in East Asia would be maintained constantly. However, we have several problems: the abolishment of destination clause, the mitigation of domestic regulations, and the risk of mixing LNG of different production wells. To realize open access tanker, these problems should be solved.

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