

Towards an Integrated Spot LNG Market: An Interim Assessment

Xiaoyi Mu¹, Haichun Ye²

Executive summary

Traditionally, international trade of liquefied natural gas (LNG) has been characterized by long-term contracts that last for 20-25 years, under which a limited number of sellers supply certain regional or country markets with minimum “take-or-pay” requirements. These long-term contracts leave little flexibility for market arbitrage. As the industry expands, market players have sought more flexibility in order to arbitrage across different LNG markets. Consequently, the spot and short-term LNG trade has grown. Over the last decade or so, the volume of LNG traded on the spot and short-term markets has grown steadily in recent years and reached 69 million tons per year in 2014, accounting for 29 percent of the total LNG trade worldwide.

This paper takes a first look at the emerging spot and short-term LNG markets. Short-term contracts are those with a duration of less than four years, also see Hartley (2015). Hereinafter, we refer to both spot and short-term trade as “spot market”. We are particularly interested in investigating whether, and to what extent, spot LNG markets in different regions are integrated, how market integration evolves over time, and how the spot LNG markets interact with the more mature natural gas market in the United Kingdom (UK). We omit the US market from the empirical analysis as the shale gas revolution effectively made the US disconnected from the rest of the world over the sample period. There has been considerable debate, especially in anticipation of LNG exports from the US, about whether internationally traded natural gas pricing will remain regional or become global as is the case with crude oil. A related question is whether the latter will lead to the decoupling of gas pricing from oil-indexation and eventually a shift to gas on gas competition. However, a “global” gas market will not occur if the market for LNG, which is still the only feasible means of transporting gas in large volume across oceans, remains regional.

We first lay out a conceptual framework of market integration in the context of spot LNG market where the producer’s market power is considered. Using weekly data for the period of 02 August 2010 to 27 February 2015, we find varying degrees of integration not only among the four regional LNG spot markets, but also between the regional spot LNG markets and the UK natural gas market. Moreover, our results from the Phillips-Sul (2007) convergence test further reveal that, the spot LNG prices are converging towards the end of the sample period and they are also converging with NBP price in the UK. The convergence test results are consistent with predictions from a model where the major producer (e.g. Qatar) has market power and the market power changes following an extremely large demand shock such as the Fukushima accident. Our convergence test results lends additional confidence that such a market might emerge as the

1 Corresponding author. Centre for Energy, Petroleum and Mineral Law and Policy, University of Dundee, Carnegie Building, Dundee, DD1 4HN, UK. Email: x.mu@dundee.ac.uk.

2 Institute of World Economy (IWE), School of Economics, Fudan University, 600 Guoquan Road, Shanghai 200433, China. Email: haichunye@gmail.com.

volume of LNG available for spot and short-term markets further increases and infrastructure for interconnection improves in the future.

Keywords: LNG, spot market, market integration, convergence.