CHAPTER 3

Structural Changes in Natural Gas Markets

Natural gas markets are much less integrated than oil markets, a reflection of the cost and logistical difficulty of trading gas across borders. This results in substantial price differences across regions despite increasing liquefied natural gas trade. Global natural gas production and consumption have increased steadily over time and are projected to increase even more rapidly in the medium term. Three major historical developments have had particularly important implications for gas and energy markets: the shale gas revolution in the United States starting in the 2000s, the reduction in nuclear power supply after the Fukushima disaster in Japan in 2011, and the geopolitical tensions between Russia and Ukraine from the mid-2010s. These developments not only had profound effects on regional prices but also revealed specificities about the structure of natural gas markets. Natural gas could constitute a bridge from coal and oil to renewables during the so-called energy transition.

Natural gas is a cleaner fossil fuel than either petroleum products or coal and does not present the potential environmental liabilities associated with nuclear energy generation. Despite these advantages, the cost and logistical difficulty of trading gas across borders leave natural gas markets much less integrated than oil markets. Shipping or transporting natural gas requires either costly pipeline networks or infrastructure and equipment for liquefying (compressing) the gas, dedicated vessels for transport, and then facilities for regasification at the destination. The lack of integration of gas markets leads to substantial price differences across regions. These have been exacerbated by the U.S. shale gas boom in the 2000s and the Fukushima nuclear disaster in Japan in 2011, despite the growth of trade in liquefied natural gas (Figure 3.1).[1]

Technological improvements in exploration and drilling activities have enabled both new discoveries and exploitation of previously identified reserves of natural gas, and there are many more prominent producers of natural gas today

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[1]Because of the sector's high capital intensity, natural gas suppliers tend to enter long-term contracts with customers. Prices are indexed to crude oil prices, which introduces rigidities on the price side.