Perspectives on the Russian-European Natural Gas Market

By Oleg Eismont*

Within recent years, “gas” relations between Russia and Europe have become strained. This is mainly due to concerns about the reliability of Russian gas supplies to Europe (especially after the reduction of gas supplies in January 2006 and completely cutting them for two weeks in January 2009), and to liberalization of European gas market (seen by Russia as a threat to its important role on the European gas market and followed by the publicly declared intentions to redirect Russian gas exports from Europe to Asia). At present, Russia (represented by the Russian gas monopoly Gazprom) supplies natural gas according to long-term “take-or-pay” contracts with particular European countries and companies. However, a number of European countries and political leaders favor a unified European policy in dealing with Russia. As EU Vice President G. Verheugen put it, “The principle of solidarity is a basic principle of the EU, and we will never, never, never violate this. … That means that our partner countries cannot pick and choose. You have to deal with the whole, with all the EU. You cannot separate or single out member states.” In this respect, it is worth mentioning that several years ago, under pressure from the EU, Gazprom was forced to abolish the ban on resale of natural gas it supplies to European consumers, which deprived Gazprom of the possibilities to use the policy of price discrimination on the European gas market.

It looks quite realistic that, within the not too distant future, Russia might face a unified Europe in negotiations on gas supplies. In that case, taking into account that Russia is the leading player in the European gas market, its gas being supplied to Europe only by pipelines (which impose rigid ties between supplier and consumer), one could expect formation of a monopolistically-monopsonic Russian-European gas market. Within the last decade, the international gas trade has experienced significant changes, caused by the dramatic expansion of liquefied natural gas (LNG). Though LNG production and delivery costs are higher than the costs of supplying natural gas by pipelines, due to high natural gas prices, LNG is quite competitive relative to natural gas transported by pipelines. LNG now accounts for nearly 30% of world natural gas trade, its share in natural gas consumption in Europe being about 13%. Since LNG can be shipped anywhere and transportation costs only weakly depend on distance, rapidly increasing production of LNG may lead to the formation of a world natural gas market. The share of LNG spot trading on the European natural gas market reached 13% of total LNG supplies in 2008, and this figure is forecast to be about 20% by 2012. Quite often, it is argued that since Gazprom has long-term contracts which are valid until 2020 and even 2030, it should not worry about future supplies of natural gas to Europe. However, existing contracts could be subject to change, long before their expiry. Since European spot prices of natural gas in 2009-2010 got significantly lower than contract prices, Gazprom had to soften conditions of existing contracts by lowering minimum volumes of natural gas consumers were obliged to buy according to “take-or-pay” contracts (e.g., recent agreement between Gazprom and E-on Ruhrgas). What could be the consequences of the above mentioned circumstances for the natural gas trade between Russia and Europe?

Though the problems of Russian-European gas trade have been addressed in a number of papers, perspectives on the formation of monopolistically-monopsonic Russian-European gas market have been ignored. To analyze possible consequences of the monopolistically-monopsonic Russian-European gas market for Europe and Russia within a formal model, the following assumptions have been used. Europe consumes domestically produced natural gas, as well as imported gas from Russia and other countries. It is assumed that European gas producers and producers from countries other than Russia behave competitively on the European market and their supplies are limited. Under these conditions, Gazprom can be considered as a dominant company within a competitive fringe of the European gas market. There is a world natural gas market. Within this setting, the bargaining problem between Russia and Europe on gas supplies is considered. The guaranteed payoffs of both sides in this bargaining problem are as follows: for Russia – profit from selling gas to Europe at prices that are equal to the corresponding marginal cost; for Europe – surplus of European consumers of Russian gas supplied on residual demand market at monopoly price. The bargaining power of each side is assumed to depend on its access to the world natural gas market which, in its turn, depends on Russia’s natural gas liquefaction capacities and Europe’s LNG re-gasification capacities. The equilibrium state of the Russian-European gas market is obtained from maximization of the corresponding Nash product.

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It has been shown that the bargaining powers of Russia and Europe depend only on the ratio of marginal costs of natural gas liquefaction and LNG re-gasification (adjusted for the ratio of interest rates in Russia and Europe). Based on available statistics, the bargaining powers of both sides, as well as Russia's profit and surplus of European consumers of Russian gas can be estimated. In equilibrium, the bargaining power of Russia is much lower than the European one which is due to very high liquefaction costs, relative to re-gasification costs, and higher interest rates in Russia. The main result is that Russia's equilibrium profit from selling gas to Europe is only 5% higher than its guaranteed profit, while the equilibrium surplus of European consumers of Russian gas is 50% higher than their guaranteed surplus. Thus, the formation of a monopolistically-monopsonic Russian-European gas market, while being beneficial for Europe, is highly unprofitable for Russia. The actual state of affairs for Russia is even worse, since up to now it has no natural gas liquefaction plants that could use gas currently supplied to Europe by pipelines, while there are many re-gasification plants in Europe and their number is constantly increasing. Moreover, existing re-gasification capacities are considerably higher than the current LNG supplies. Taking into account these results, construction of new gas pipelines from Russia to Europe (North Stream and South Stream) could make perspectives of monopolistically-monopsonic Russian-European gas market for Russia more problematic.

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