

Russian Oil Field Auctions

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Crude oil plays an increasingly important role in the modern industrial society, justifying our time as the oil age. Of course, other forms of energy can, at a price, replace oil, but its unique performance and historic position of being the main energy source is brought about by our lifestyle. Oil has been supplying the world's growing demand in energy during the past century, and there is a clear expectation of its continuance. Due to industrialization, oil demand has significantly escalated in the past decade, particularly in the emerging economies. Today oil supplies about 40% of the world's energy demand and covers over 90% of its transportation energy. Since the shift from coal to oil, the world has consumed about 1.000 billion barrels. And another 1.000 billion barrels of proved and probable reserves remain to be recovered (IAGS 2003). It is also expected that oil consumption will rise together with oil recovery volumes.

According to OPEC estimates, by 2020 the world consumption of oil will rise by ca. 20% from 4.031 mtoe to 4.830 mtoe (OPEC 2008). The major task for the key countries/suppliers is to cover continuously growing demand, what in turn means that the oil market players will have to increase recovery capacities.

Today Russia is the second largest oil producer, extracting daily ca. 9.8 mln bbl and the second largest oil exporter with exports of ca. 4.1 million barrels per day. The actual volume of Russian proven oil reserves is confidential data. However, in various sources you will find independent estimates varying from 60.000 up to 200.000 mln bbl, which should be sufficient for the next five decades.

Russia is a large country with a vast territory of more than 17 mln. km². Nevertheless, it possesses a wide network of oil pipelines and railways, which capacity is constantly increasing, providing oil companies with new supply and distribution opportunities.

The international oil companies are constantly looking for access to potential new resources. Since approximately three quarters of the world's proven oil reserves are in the tight grip of nationalistic governments, Russia could create a great opportunity for the interested oil companies. Despite its non-transparent legal frameworks, Russia does have a competitive oil recovery market structure. The five biggest companies share up to 75% of the oil production market, namely Rosneft, Lukoil, TNK-BP, Surgutneftegaz, and Gazpromneft (Infotek 2006-2008). All of them are joint-stock companies with shares traded worldwide.

In spite of weak legal institutions and the dominance of oligarchs, Russia is one of the largest opportunity markets for international oil companies. These will be welcomed in Russia not due to the absence of its own capacities, but because of a general need for new exploration and recovery technologies, such as secondary and tertiary methods, which shall be brought into the country by the new exploration projects.

In the last two decades oil companies were exploiting reserves that have accumulated in the times of the Soviet Union. The increment of the extractable reserves added was less than production. Also the increased market prices for oil could not change the current situation (Rubanov 2006-1). The forecasting coefficient of oil recovery (the "FCOR") has decreased in Russia since the 1960s. The current estimated rate is 35% (Rubanov 2006-2). The entrance of new companies into the Russian oil market may affect FCOR increasing it to upwards of 50% due to the utilization of the new methods of recovery, namely secondary and tertiary methods. However, the deployment of these methods leads to a significant rise in production costs (Dorochoy 2007).

The aim of our research is to investigate Russian oil field auctions empirically. Having collected a data sample from 60 oil field auctions for the period of 2004-2008, we have tried to determine the factors affecting the result of the bidding process taking into account the legislation and the specific geological features of the oil field.

Oil Fields Allocation Procedure in Russia

The main regulatory issues concerning the examination, allocation, exploration and recovery of oil reserves are outlined in the Russian Federal Law on Mineral Resources. According to this document, all mineral resources are the state property; however, any third party may obtain a right to use these resources by obtaining a relevant licence.

There are two ways of oil field allocations. The first one is through a production sharing agreement, but we skip this due to the small number of practical examples. The second way of allocation is the public auction. The winner of the auction will be granted the recovery and exploration right for a specified field. The right will normally be given for 25 years, inclusive of five years for the geological study of the field.

The theory of auctions is one of the most successful modern economic theories. Auctions have become an effective tool of public policy implementation. Huge volumes of goods and services, property, mineral resources and financial

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instruments are sold through auctions and many models are being designed. The United States have been particularly successful in organizing significant numbers of auctions.

The auction is an instrument representing an efficient way of distributing scarce resources, ensuring that the object will be allocated to those, who value it most. If the value of a good is unknown, the auction provides a valuation mechanism, i.e., the good is worth at least as much as the highest bid paid. Moreover, it provides a simple clearing mechanism determining the market price and allows demand and supply meet (Klemperer 2004).

Russian oil field auctions are usually organized in the form of the open English auction. According to Milgrom and Weber (1982), when bidders are risk neutral and uncertain about their value estimates, the English auction leads to higher expected prices, due to the opportunity to observe the behaviour of their competitors in the bidding. Such information weakens the winner's curse since it leads to more aggressive bidding. Auctions are more flexible than a fixed price sale and less time-consuming than price negotiations. In recent years more than 200 auctions have been organized annually by the Russian government for the allocation of fields containing oil and gas reserves (see Table 1).

Year	Number of Auctions
2006	239
2007	208
2008	245

Table 1

Auctions Allocating Oil and Gas Reserves

Source: Federal Subsoil Resources Management Agency

Factors Affecting the Outcomes of the Oil Fields Auctions in Russia

For the purpose of an empirical approach we have gathered data from 60 oil field auctions that took place in different regions of Russia during the period of 2004-2008. We have analyzed several factors, namely: a) geological data, the volumes of extractable resource and its categories (only oil reserves were taken into account and no by-products such as condensate or natural gas), b) pricing information: initial allocation price (reserve price), amount of the

participation fee, the auction's step and the final price paid by the winner, c) the number of the auction participants, d) current market crude oil price, and e) Russian legislative parameters affecting the selling price, which are reflected in the oil netto-export price (the market price minus export fee) (see Figure 1).

Unfortunately due to information constraints we could not take infrastructure parameters into account. The analysis of the influence of such data is subject to further investigation.

We used a multiple regression model to determine the factors affecting the results of the oil fields auctions. This indicated that the final price per barrel of crude oil reserves (to be paid by the winner) is positively influenced by the number of participants and by the initial auctions price per barrel of reserves. We were quite surprised that parameters such as the volume of reserves, the auction's reserve price and the netto-export price did not affect the outcome significantly. Moreover, we have unexpectedly found that the number of participants is negatively correlated to the netto-export price. This is quite intriguing, but could be explained by

the increased role of the top domestic oil companies. In the last four years the volume of the crude oil recovered by the five largest oil companies operating in Russia has increased by 10% and their market share has risen from 70% up to 75% (Infotek 2006-2008).

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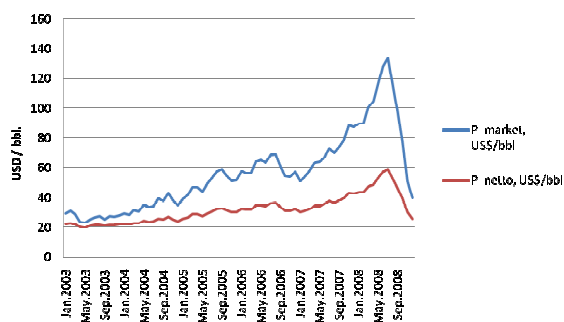


Figure 1

Crude Oil Market Price and Russian Netto-export Price

Source for Crude oil price: Energy Information Administration, Russian Federal Law on Export fees.