Case Study From

NEW ERA IN OIL, GAS & POWER VALUE CREATION

Soviet Legacy on Russian Petroleum Industry[1]

The Russian oil and gas industry represents an example of how industry decline was brought not by external factors, but rather by poor management practices and lack of investments. Russia's oil and gas industry, which is still transitioning to a market economy, has inherited the legacy of the Soviet centrally planned economy. Just like in other sectors of the Soviet economy, most of the decisions regarding the production of resources were made based on the targeted quotas set by the government. This led to numerous problems, with which Russia still continues to deal.

- *How did central planning affect the development of the oil and gas industry? What were major problems?*
- *What changes were brought into the industry after the collapse of the Soviet Union?*
- *What remains to be improved?*

Background

Russia's population is 145 million people (2002) and the country's area is 17.07 million square kilometers. The country's population is well-educated, resources are very rich, and industrial base is diverse. Ten years after the breakup of the Soviet Union in 1991, Russia is still working towards establishing a modern market economy, upgrading its industrial base, and maintaining strong economic growth. During the first few years after the fall of the Soviet Union, the business climate was poor, living standards were very low, and reforms were very marginal. In 1997 – 1998, the situation improved somewhat as Russia achieved some progress in reforms and privatization programs and its currency stabilized. But in 1998, with the Asian financial crisis, the Russian ruble fell dramatically, and the country's exports decline brought a decrease of earnings. The tripling of international oil prices in the second half of 1999 raised the export surplus to $29 billion. On the other hand, inflation rose to an average 86% in 1999, compared with a 28% average in 1998. In view of all this and due to such problems as capital flight, reliance on barter transactions, corruption among officials, and widespread organized crime, investors are still hesitant to commit to investments in the country.

Russia's industrial base is also depleted and needs significant investments and improvements for future growth of the country's economy. Russia will need to decrease its dependence on export of its resources, where oil, natural gas, metals and timber account for 80%.

Oil and Gas Industry during USSR

[1] This case study was prepared using publicly available information.

At its peak level of production in 1988, the Soviet Union was the world's largest producer of crude oil at 11.8 million barrels per day, well ahead of the United States at 8.1 million barrels per day and Saudi Arabia at 5.3 million barrels per day. Most of the oil and gas reserves of the former Soviet Union were located in the Russian Republic, which accounted for approximately 95% of the Soviet Union's production. At its peak level of exports (1988), the Soviet Union was the world's second largest crude oil exporter at 4.1 million barrels per day, behind the world's largest exporter, Saudi Arabia, at 4.7 million barrels per day.

The Soviet Union was by far the world's leading producer of natural gas at 28.8 trillion cubic feet per year in 1990, well ahead of the second largest producer, the United States, at 17.6 trillion cubic feet per year. The Russian Republic accounted for 78% of the Soviet Union's natural gas production.

The Soviet Union consumed 7.7 million barrels of oil per day in 1988, which was about half of the United States' consumption of crude oil and 80% of Western Europe's oil consumption.[2] These figures show that the Soviet Union and the Russian Republic were major producers, exporters, and consumers of primary energy products.

Fossil Fuel Reserves, Production and Consumption in Russia (2001)

	Proved Reserves	Production	Consumption
Oil	6.6 billion t. (48.6 billion b.)	380 MT/yr (7.5 mb/d)	118 MT/yr (2.38 mb/d)
Natural Gas	47.6 tcm (1,700 tcf)	598 bcm/yr (57.2 bcf/d)	386.2 bcm/yr (37.8 bcf/d)
Coal	173 billion short tons	281 million short tons	249 million short tons

Sources: Energy Information Administration, BP World Energy

Russia currently accounts for 5% of the world's crude oil reserves and 34% of the world's natural gas reserves. In 2002, Russian oil production increased to 7.8 billion barrels per day, and gas production was 20.5 trillion cubic feet of gas. The abundance of Russia's resources places the energy sector in a leading role in the Russian economy. In addition to being an important engine of recovery in the short-term, the Russian energy sector has been expected to play a major long-term role in the future growth of the Russian economy.

Major Problems with the Oil and Gas Industry during USSR

In 1991, after a long period of economic and political stagnation, the Soviet Union collapsed. The energy industry contracted along with the rest of the Soviet economy. Oil production in 1996 was less than 6 million barrels a day – about half of pre-1990 levels. This contraction was partly due to the overall slowdown in the Russian economy that caused a decrease in energy demand. The energy sector also suffered because of the inefficiencies inflicted upon the Russian economy during the administrative-command system of the Soviet Union and the reluctance of post-Soviet governors of Russia to implement policies that would remedy these inefficiencies in an era of otherwise open market conditions.

Like the rest of the Soviet administrative-command economy, the oil and gas industry of the former Soviet Union was managed in a highly centralized manner. The powerful Ministry of Oil Industry and Ministry of Gas Industry together with the State Planning Committee (Gosplan) set production quotas, established delivery plans, and drew up plans for investment and renovation. Oil and gas were produced by regional production associations

[2] The statistics on production, exports, and consumption are from *Handbook of International Economic Statistics 1992* (Directorate of Intelligence: Washington, D.C., September 1992), Tables 36, 37, 38, 43.

that were under the supervision of the Ministry. The various departments of the Ministry managed different aspects of production, transportation, and sales. For example, the oil pipeline company of the oil ministry, Transneft, was the department in charge of all transportation of oil by pipeline.

Target Production

Prior to the 1990's, production of resources in the Soviet Union was not aimed at maximizing profits but rather at meeting physical goals - such as tons of oil produced, volumes of oil or gas transported, gallons of gasoline refined, or numbers of oil wells drilled - set by the Ministry. The production of 12 million barrels of oil a day in the late 1980's was based upon centralized planning, utilizing development programs with inefficient technology. The productivity of production associations and their managers was judged on how they met these quantity plan targets. Since majority of production targets was quite unreasonable – with little regard to profitability and little concern for the environment, such an approach led to poor reservoir management. Wells were flooded with high water content. Thus, the reservoirs were endangered and productivity decreased.

Absence of Competition

Since the planning was done by the Ministry, it protected the production associations from competition. There was no incentive to operate efficiently since there was no competition.

Redistribution of the revenues to other sectors

Profits were redistributed to the sectors not in accordance to the source but towards political priorities (e.g. defense and military superiority). Such inability to make decisions and benefit from operations gave little incentive to the production units to care about conservation of resources, innovation, and improvement of operational and management practices. They were not concerned about costs, prices, and other features that would help a company to differentiate itself from other companies in a competitive environment.

Investment of oil and gas industry

The Russian oil and gas industry suffered from a severe collapse in investment spending during the late 1980s and early 1990s. The Government used profits of the industry to support the other sectors of the economy. The oil and gas industry did not receive much of the new investments or reinvestment funds. Foreign investment in Russia's oil and gas industries was also limited by the government because it feared losing control of the country's strategic resources. The government felt that Russia did not need to invite foreign companies since it already had an existing industry with well-educated professionals and sufficient technologies to explore and produce oil.

Controlled transportation

Transportation of oil and gas resources within the country and outside was, and still is, controlled by the government and run by state monopolies. In the Soviet Union, the transportation tariffs and quotas were set by the Ministry and could not be altered by the transportation companies.

Controlled prices

Prices for oil and gas were strictly controlled as well. Even though oil and gas were sold to the West at world prices, domestic producers were paid industry wholesale prices that were a small fraction of the world price. Oil exporting enterprises simply received the low domestic price while the difference went into state revenues.

On the demand side of the market, Soviet enterprises and consumers paid low domestic prices. The prices were so low that energy was almost considered as a free resource. Although Russian prices were generally liberalized after January 1992, Russian authorities maintained ceilings on fuel prices given their importance to Russian consumers and to fuel-inefficient Russian industries. In early 1993, the highest domestic sales price of Russian oil was approximately $6 per barrel while the world price was around $18 per barrel. In November 2001, the domestic crude price collapsed, falling from about $13.70 per barrel at the wellhead to just $4.48 per barrel in January 2002. According to government regulations, Gazprom (Russia's joint stock gas company) had to sell gas to domestic users for around $0.45 per 1,000 cubic feet, which was less than production cost and 10 times less than export price.

Non-payments

The Russian energy industry was affected by a rash of non-payments for its products as well. Russian oil and gas producers were pressured by government officials to continue delivery due to the overall importance of these products to consumers and industries. As domestic prices continue to remain significantly lower than world prices, oil and gas continued to be "overused" by domestic consumers. In the case of gas industry, only 83% of users have paid Gazprom in 2001 (which was a significant improvement over 39% in 1999).

Technological innovation

Limited investments into the industry reduced the amount of innovation introduced for the operations. Although research and development have always been a large part of the industry, funds have been a problem. The government also did not allow the purchasing of foreign equipment. As a result, exploration and production equipment have become quite primitive and old and unable to sustain level of production from aging and damaged fields. The end result was an irrational use of resources, depletion of reservoirs, and decreased production levels. The equipment and infrastructure have also been environmentally unsafe. For example, pipelines in Siberia could run for thousands of kilometers without any leak detection and tracking mechanisms, which made it difficult to maintain pipelines and respond to leaks. Pipelines were often corroded and caused severe environmental pollution.

Legal and Regulatory System

The legislation in the industry has been and remains a big obstacle for development. The old Soviet rules and regulations managing the technical side of the oil and gas development were very restrictive. Instead of setting the goals and letting the companies establish their own practices and use the necessary equipment to make the production more efficient, the rules and regulations prescribed with exact detail every aspect of the oil and gas exploration and production. Requirements for production companies to obtain numerous permits to conduct operations created and supported the layers of bureaucratic agencies, which often had duplicate functions.

The Russian energy sector was singled out by tax authorities as a major source of tax revenues. Special energy taxes discouraged production, exports, and investment. There was also a problem of multiple taxes overlapping as taxes were imposed by regions and municipalities.

Post-Soviet Russian Oil and Gas Industry

A lot has improved in the industry since the collapse of the Soviet Union. Some basic laws were adopted in 1992 concerning the legal status of private enterprise, privatization and foreign investments. These laws became the foundation for the reform of the oil and gas

structure in Russia. Although the sector still remains heavily regulated by the government, the system is now much closer to a market-based system.

As a result of these reforms, at the beginning of the 21st century, a highly competitive and active oil and gas sector has emerged, dominated by private and joint-stock companies. Among the largest are Gazprom, Lukoil, Yukos, TNK, Surgutneftegas, Sibneft and Slavneft. But in 2001, daily production was 20% more than 1996 at 7.2 million barrels a day. This increase was mostly the result of large investments made in the Russian upstream operations. On the other hand, natural gas production dropped from 22 trillion cubic feet in 1992 to around 20 trillion cubic feet in 1997 and remained at about the same level since then. Technical development is going very well. As Russian companies compete among themselves and on the international arena, they are forced to implement the best available technologies and practices to maximize their profits and provide necessary protection of the environment and conservation of resources.

Although reforms have been quite significant, many challenges remain:

- Russia has achieved significant progress in terms of setting up the legal and regulatory system in the country. The Russian economy used to be run on the basis of presidential decrees. Today, nearly all significant policy is now made by legislation. Policy making has become more transparent and somewhat predictable. However, the legal and regulatory base remains largely imperfect. Laws are either inadequate, remain to be written, or, if written, are poorly enforced. The tax system has been improved, but it still is based on complicated special privileges and exemptions that could be arbitrarily withdrawn.
- Despite the existence of a state committee on anti-monopoly policy and a law on competition and the restriction of monopoly activity on commodity markets, the committee lacks the political power to challenge Russia's entrenched economic and bureaucratic interests. Restructuring of natural monopolies may be necessary to attract substantial foreign investments in the energy sector and challenge existing uncompetitive practices.
- The major Russian oil companies are generating significant revenues given the current oil price of $30 per barrel or more, but need access to foreign capital markets to raise equity to expand their production. They are currently moving in that direction.
- Russia’s domestic oil prices are about half the world’s market price. Russia’s increasing oil production will further decrease the prices. Therefore, Russia needs a larger access to the world markets. Existing transportation systems are nearing its maximum capacity, so if oil production increases (as it has been recently), new routes need to be developed. Some are already under development, including oil supply from Sakhalin to Japan, supply to North America, and possibly construction of new oil terminals and expansion of existing European routes.
- Some projects proposed by private companies (such as, for example, construction of a new oil terminal in Murmansk) meet resistance of the government due to reluctance to release its ownership and control of resources and facilities. This leads to unwillingness of private companies to invest in strategically important projects