The Russian Al Industry’s Difficult Transition to a Market Economy

S.C. Manaktala

Editor’s Note: This article is adapted from the author’s invited presentation at the Light Metals Division luncheon during the 1995 TMS Annual Meeting. Previously, Mr. Manaktala won the 1994 JOM Best Paper Award from the Light Metals Division for his three-part series of papers on the Russian aluminum industry.

INTRODUCTION

In the past few years, the world has watched with fascination as events of major historical significance were taking place in the former Soviet Union. Starting in 1986, then-President Gorbachev instituted Glasnost and Perestroika in an effort to revitalize an economy that had been stagnant for some time. These efforts were unsuccessful and eventually led to the collapse of the Soviet Union in late 1991, with all of the former republics going their separate ways. In the wake of the recent collapse, the Russian Federation—the dominant player in the now rechristened Commonwealth of Independent States (CIS)—committed itself to building a new society loosely based on democratic principles and market economics.

In the ensuing years, the rate of economic change in Russia has been staggering. Since 1991, inflation increased by more than 23,500%, the gross domestic product declined by 36.3%, and the Russian ruble lost more than 99% of its value against hard currencies. It was against this dramatic backdrop that the Russian aluminum industry struggled bravely in the early 1990s and managed to survive and even to prosper.

Russia and the former Soviet republics are relatively new players in the world aluminum marketplace. Their sudden and unexpected entry into the market a few years ago flooded an already depressed world market with unneeded metal and lowered the price of aluminum to levels that put almost unbearable pressure on Western producers. This led, in turn, to an embargo of Russian metal into the European Community and other countries. In time, measures were developed that were designed to ease the orderly integration of the Russian aluminum industry into the free market economy.

HISTORY

Founded in the early 1930s, the Russian aluminum industry expanded rapidly to feed an increasingly metal-hungry military establishment, which, at times, consumed as much as 80% or more of the industry’s output. The early plants, built through the 1950s, all relied on horizontal-stud Söderbergs and were located primarily in European Russia and in the Urals. The smelters built in the 1960s used vertical-stud Söderbergs of gradually increasing amperage, and the smelters themselves grew to gigantic sizes fed by abundant hydroelectric power generated on the Yenisey and Angara Rivers in Central Siberia. The two largest smelters, Bratsk and Krasnoyarsk, had capacities of 850,000 tonnes and 800,000 tonnes, respectively—making them by far the largest aluminum smelters in the world.

Prebake technology finally found a home in the two smelters built in the 1970s and 1980s: Regar in Tadjikistan and Sayansk in Central Siberia. Altogether, the peak primary capacity in the Soviet Union was about 3,700,000 tonnes per year, with most of it (about 2,900,000 tonnes) being located in the Russian Federation. These were also the capacities that were in place as the Soviet Union was beginning to unravel.

As the economic and social underpinnings of Soviet life collapsed, the smelters continued to operate at about 90% of capacity (Figure 1). They did this in spite of a general breakdown in the banking and raw materials supply systems, severe inflationary pressures on the ruble, and other chaotic conditions affecting all segments of their society. Paralysis in Moscow probably helped rather than hindered: the central authorities with their bureaucratic traditions were never a great help anyway. Keeping the smelters operating under these conditions was an extraordinary feat for which the smelter managers and their staffs deserve much credit.

Along with the general economic decline, Russia’s biggest user of aluminum, the defense industry, was severely downscaled as the Cold War came to an end. This led to a catastrophic drop in domestic aluminum consumption and forced the primary smelters to look toward other markets. However, the higher working capital requirements for the export market, due to the longer pipeline to the markets and to inventory buildup, led to a severe cash crunch that forced the newly privatized smelters to make deals with foreign trading compa...
enterprises undergoing privatization.

In typical tolling arrangements, the trading companies would supply alumina, transport the metal to the terminal markets, and pay the smelters a negotiated tolling charge. For 1993–1994, tolling is estimated to have accounted for approximately 80% of the total Russian aluminum output. These levels are likely to be sustained at least through 1995. Nearly all of the tolled aluminum is currently being exported as primary metal, a situation that may change somewhat because of the government's recently adopted export policy to encourage secondary tolling through Russia's virtually idle fabricating plants.

Even as metal was being tolled, the Russian aluminum smelters were going through a state-decreed privatization program. This program was started by the government allotting vouchers to all Russian citizens. These vouchers could be exchanged for shares in state-owned enterprises undergoing privatization. Usually, the employees and management of an enterprise were allotted 51% of the shares, 29% went to the regional government, and 20% to the central government in Moscow. The government-held share were eventually auctioned off to private bidders, including nondonestic companies. Large blocks of both employee- and government-held shares ended up in the hands of foreign trading companies, who then proceeded to acquire a majority share position in several of the larger Russian smelters. Unlike the trading companies, which became familiar with the inner workings of smelters by virtue of their tolling agreements, the international aluminum producers showed little interest in pursuing the share market during the first phase of the privatization program. As a result, the ownership of the Russian smelters is currently in large part in the hands of foreign-based trading companies, Russian entrepreneurs, and institutional investors. There is evidence to suggest that international aluminum producers are currently engaged in developing shareholding positions by participating in the remaining government auctions or by purchasing shares in the developing secondary market.

**THE RUSSIAN ALUMINUM INDUSTRY TODAY**

Figure 2 shows the precipitous decline of the domestic demand for aluminum from 2.4 million tonnes per year in 1990 to about 550,000 tonnes per year by the end of 1994. This decline, as mentioned previously, was largely responsible for the sharp increase in Russian metal exports. Russian exports are expected to remain at about two million tonnes in 1995. These continuing exports of metal and the recent increase in non-CIS alumina imports (Figure 3) suggest that the Russian aluminum industry is being integrated gradually into the world economy. This integration is expected to gain momentum as semifabricated and fabricated products join primary aluminum as export commodities in the next two to five years.

Of the 14 CIS smelters, 11 are located in Russia. Five of these, located in Central Siberia, account for 82% of the Russian capacity. With the exception of the Novokuznetsk smelter, they all get their power from massive hydroelectric generating plants along the Angara and Yenisey Rivers. With a capacity of about three million tonnes, Russia is the second largest producer of primary aluminum in the world.

Horizontal Soderberg plants, accounting for about 500,000 tonnes capacity (17% of the total), are located mainly in European Russia. The vertical-stud Soderberg plants, with a capacity of nearly 2 million tonnes are clustered mostly in Central Siberia. Together, the Soderberg plants account for nearly 88% of the Russian capacity and present major environmental problems. Prebake plants represent only 350,000 tonnes of capacity.

As for alumina refineries, six are in Russia, and four are in other former republics. The latter represent nearly 50% of the CIS capacity. Because of Russia's insufficient domestic alumina capacity and low output from domestic refineries, Russian smelters currently import about three million tonnes of alumina per year (Figure 3).

Extending about 7,000 km from east to west, Russia is the largest country in terms of land area. The Siberian smelters in central Russia are about 3,200 km from the nearest port. As the previously subsidized freight rates reached free market levels, the freight component in the cost of producing primary metal became significant. In today's terms, the freight rate for alumina deliveries to the Siberian smelters is approaching $70 per tonne, and the freight rate for metal shipments is nearly $50 per tonne. Transportation costs will, therefore, remain an important factor in determining the long-term competitiveness of the Siberian smelters.

Table I shows the decline in CIS alumina production in 1994. The Russian refineries, using such low-grade ores as diasporas and nephelines, are facing increasing competition from imported alumina supplied mostly by tollers. As a result, the Russian refineries are operat-

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**Table I. CIS Alumina Production in 1993 and in the First Two Quarters of 1994**

<table>
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<tr>
<th>Plants</th>
<th>6 Months, 1993</th>
<th>Total 1993</th>
<th>6 Months, 1994</th>
<th>Total 1994</th>
</tr>
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</tr>
<tr>
<td>Total</td>
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<td>5,078,943</td>
<td>2,038,413</td>
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</tr>
</tbody>
</table>

**Figure 1. The aluminum production in Russia during a tumultuous five-year span.**

**Figure 2. The production, export, and domestic consumption of Russian aluminum.**