

Production of automotive batteries in Russia and other members of the CIS: status, problems and prospects

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Abstract

At present, the total capacity for the production of automotive lead/acid batteries in Russia and other members of the CIS is 10 million units per annum. This capacity should be increased by 4.7 million units in 1996. Nevertheless, environmental problems, plant modernization and shortage of raw materials are expected to cause a decrease in the existing rate of battery production. Russia imported 1.5 million batteries in 1993. The future strategy of the Russian battery industry is two-fold: an expansion of exports; a focus on smaller battery sizes (up to 60 Ah). A major problem lies in the fact that the present market consists predominantly of small consumers that are spread over vast distances. It is therefore critical to establish an effective, new infrastructure for battery distribution.

Keywords: Automotive batteries; Russia

1. Battery use

The deployment of automotive batteries in different applications in Russia and other members of the CIS in 1991 is shown in Fig. 1. The data relate to a state of relative economic stability. The number of batteries sold in 1991 was 9.11 million batteries. Import of batteries accounted for about 10% (0.90 million) of this total amount. About 0.7 million batteries were imported by the Volga automobile plant – Avtovaz (city Toliati) – for installation in new cars.

Under these conditions of relative economic stability, a major sector of battery consumption has been automobile, tractors and farming equipment (as original

equipment in newly manufactured vehicles). The market share has been approximately 26%. The other two major consumers have been: (i) the agricultural and machine industries (~30%); (ii) the electronic, and mining/metallurgical industries (~26%).

The distribution of automotive-battery requirements in the various states of the former USSR is given in Fig. 2. This shows that the main markets are in Russia, Ukraine, Kazakhstan, Uzbekistan and Belorussia. Such information is useful for planning future sales of batteries, and for assisting the development of the battery industry in these new countries.

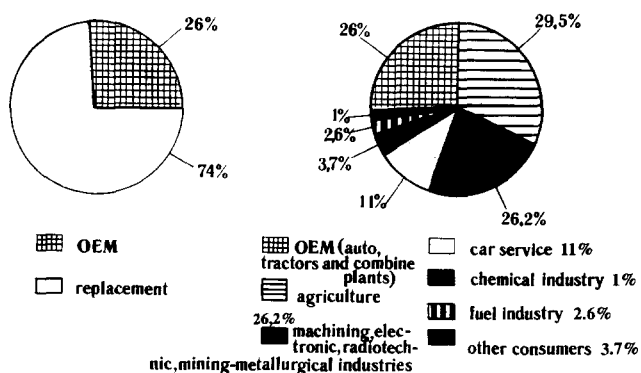


Fig. 1. Consumption of automotive batteries by former States of the USSR in 1991, by sector.

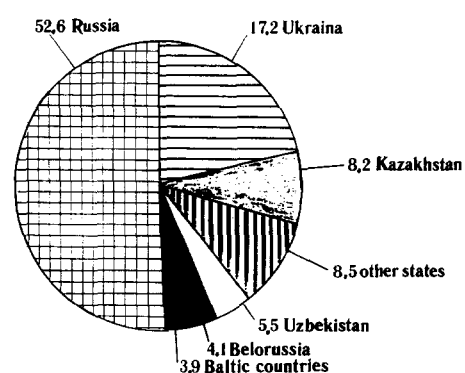


Fig. 2. Consumption of automotive batteries by former States of the USSR in 1991, by country.

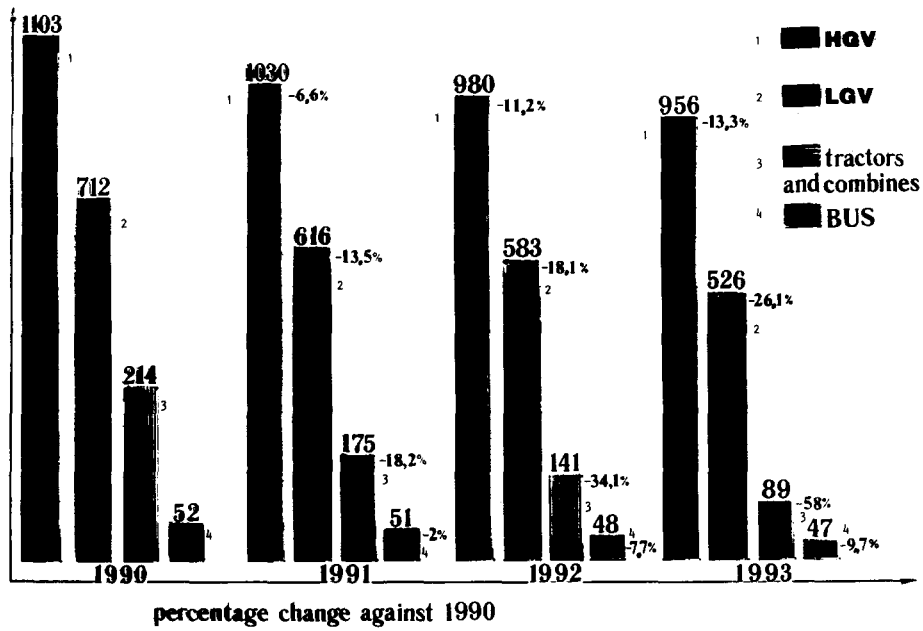


Fig. 3. Motor-vehicle production in Russia 1990-1993, by type.

2. Motor-vehicle production

The production of motor vehicles in Russia between 1990 and 1993 is given in Fig. 3. At present, the automobile industry in Russia is on the decline. During the period in question, vehicle production has decreased by about 5-6% per annum. At present, this has had a negative impact on the battery industry, principally because automobile, tractor and combine plants are the largest wholesale consumers and, usually, they help to solve the problem of selling batteries. When a developed market infrastructure is absent, the decreased demand in these three sectors of battery use creates certain difficulties.

The numbers of different types of motor vehicles that have been operating in Russia during 1991 and 1993 are given in Fig. 4. It can be seen that the total vehicle fleet has tended to increase and, consequently, the number of batteries required has also risen.

As shown in Fig. 1, the largest volume of batteries was used in the machine and electronic industries, in agriculture, and in car service (more than 82%). It has therefore become necessary to work with many small consumers who are dispersed over the vast territory of the former USSR. Under the present conditions in which the state system of distribution has collapsed, satisfying the demands of such a widespread market has become a very serious problem.

3. Battery production

Within the territory of the CIS today, there are eight plants that manufacture automotive batteries; seven of

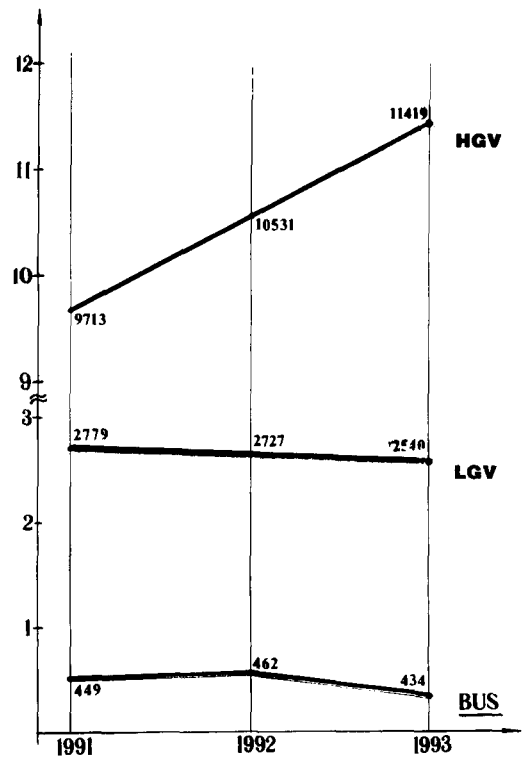


Fig. 4. Number of motor vehicles in Russia 1991-1993 (thousands of units).

them are in Russia, one in Kazakhstan. The total production capacity of these plants is 10 million batteries per year (8.5 million in Russia). Russia is currently developing additional plants. Two projects will be finished in 1996 and will allow the manufacture of a further 4.7 million batteries per year. It is quite possible that some additional capacity will also be created in

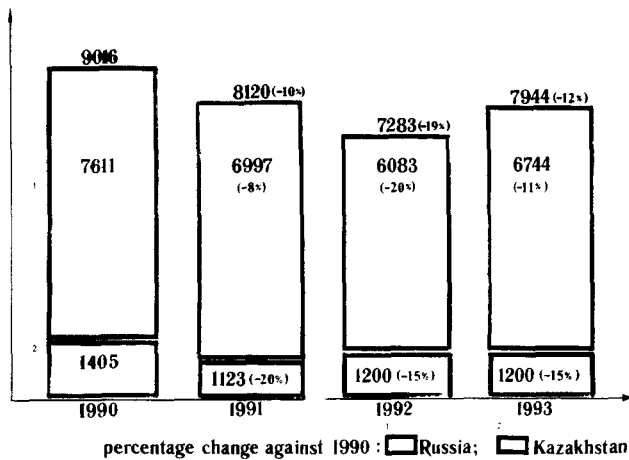


Fig. 5. Production of automotive batteries in Russia and Kazakhstan 1990–1993 (thousands of units).

Kazakhstan within this period. At the same time, however, environmental problems and disruptions due to the modernization of various plants are expected to lower the existing level of battery production.

The output of automotive batteries in the CIS during 1990 and 1993 is presented in Fig. 5. The total production of batteries in 1993 has been over a million less than in 1990. Nevertheless, the losses of 1992 have been partially picked up and the output has increased by some 0.7 million units.

The reasons why the production dropped drastically in 1992, and why the production in 1993 did not reach the level of 1990, are different. In general, this has been the result of the present economic crisis. The main cause, however, is that the state distribution system has been destroyed and, at the same time, a market infrastructure has only just begun to develop. In addition to distribution difficulties, it is also important to recognize all the problems that are associated with the provision of the necessary materials to the plants.

Attention should be drawn to the fact that the production of batteries in 1993 has increased compared with that in 1992, despite the difficulties that plants have experienced with the supply of materials that are vital for battery manufacture. In the authors' opinion, the most probable explanation is that at the very beginning of the liberalization of the economy in Russia, a so-called free market appeared within the existing distribution system. Unfortunately, the forecast for 1994 that indicated an increase in battery production has not been realized.

4. Battery price

The fact that the battery plants have managed to strangle the increase of battery prices has helped, in some way, to develop a free market. It is important

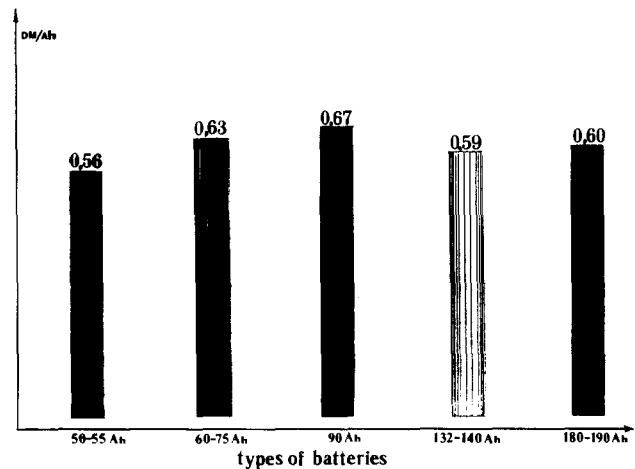


Fig. 6. Average price (DM/Ah) of automotive batteries in the CIS, Mar. 1994.

to note that whereas prices in Russian industry increased by a factor of 11.6 in 1993, there was only a three-fold increase in the prices of batteries themselves. Consequently, the profitability of all the battery manufacturers has been almost satisfactory. This has allowed not only an increase in the production of batteries in Russia, but has also enabled both the Russian and the other CIS markets to defend themselves against competitors. The average prices (ex-warehouse of manufacturer) of automotive batteries produced in Russia are given in Fig. 6. There are significantly lower than the prices of imported batteries.

5. Future battery demand

Given the fact that Russian batteries have some advantages in price and that there is still a shortage of batteries, the Government of Russia has cancelled the import duties on batteries brought into Russia. This action will encourage an increase in the volume of imported batteries during 1994. In the near future, there will be a real demand for 14 million batteries per year in the countries of the former USSR. The production volume, taking into account the new plants and the existing economic situation in Russia and Kazakhstan, will be approximately 12 million batteries. According to contracts that have already been signed up to the year 2001, and considering new production capacities, Russian plants will export about 2 million batteries per year to more 'expensive' and 'organized' markets beyond the borders of the former USSR. As a result, the import of batteries is estimated to be 4 million units per year. If the economy of Russia and other members of the CIS stabilizes, then imports may even increase. Consequently, one of the elements of the future strategy of Russian plants is to work towards an expansion in exports. This is more profitable under

Table 1
Expenditure for the creation of a basic, specialized infrastructure for the distribution of automotive batteries in Russia and other CIS members

	US\$ × 10 ⁶
Investments	
Transportation means	5.0
Equipment for offices, computers, communications	1.5
Total	6.5
Circulating assets	
Renting of consignment warehouses and the registration as customer warehouses	5.0
Financing of delivery of batteries to consignment warehouses	65.0
Total	70.0

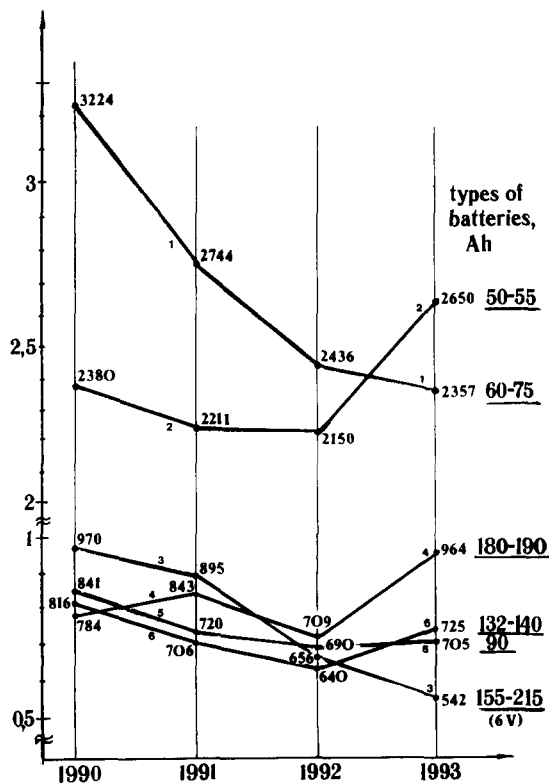


Fig. 7. Production of different sizes of automotive batteries in the CIS, 1990–1993 (thousands of units).

the conditions of (i) an increasing demand for plant modernization, and (ii) difficulties in obtaining materials of high quality. Thus, the import of batteries is not something that contradicts the interest of Russian plants.

The second important element of the proposed strategy of the Russian battery industry is a shift towards an increased production of smaller types of automotive batteries (i.e., up to 60 Ah). All the plants that will be put into operation between 1995 and 1996 are oriented mainly towards the production of such battery sizes. This approach is forced by the necessity not only

to maintain, but also to increase, the employment level at both the existing and the new plants under the present conditions of limited supplies of lead.

The production of different sizes of automotive batteries in Russia and Kazakhstan between 1990 and 1993 is given in Fig. 7. It can be seen that there has been little change in the number of large batteries (about one-third of the total). Consequently, there is a shortage of such batteries. In the past, supplies of these batteries have been obtained from both Yugoslavia and North Korea. In recent times, however, these suppliers have left the market through a variety of reasons. As mentioned above, the existing market for automotive batteries consists mainly of many relatively small consumers who are spread over a vast territory (74% of the automotive battery output is taken up by small consumers). This territory factor will become important when the present decline in the automotive industry ceases.

6. The need for a new infrastructure

In order to compensate for the non-effective, but still active, state distribution system, it is necessary to create a specialized market infrastructure. In this case, it does not matter what types of batteries are being considered. Without the implementation of this infrastructure, however, it will be absolutely impossible to achieve a greater expansion in the sales of Russian batteries than that expected in the imports of foreign batteries. While modernization of manufacturing facilities, environmental concerns and investment programmes are very important to the battery industry in Russia, without any doubt, the problem of creating an effective infrastructure for the battery market is critical. It warrants very serious attention by local manufacturers and by importers who wish to strengthen their presence in both the Russian and the other CIS markets.

Table 1 shows the volume of investment and circulating (working) assets that are required for the creation of a basic, specialized infrastructure for the distribution of automotive batteries in Russia and other CIS members. It can be seen that about US \$76.5 million is required. The system will be comprised of 120–130 regional companies with warehouses, means of transportation, etc. These companies will have their own working capital. Within the total expenditure, US \$6.5 million might be received through long-term credit. The working assets might be provided by short-term bank credits and by the merchandise credit of the battery suppliers. In the authors' view, it would be also wise to create a consortium of foreign battery manufacturers who are interested in the Russian and CIS markets, and who could quickly organize an effective distribution system.