

## RUSSIA

*By Interfax-CNA*

**R**ussia is one of the world's largest mineral producers: it possesses 12% of the world's known oil resources, 32% of its natural gas, 11% of its coal, 31% of its potassium salts, 21% of cobalt, 25% of iron, 15% of zinc, and 10% of lead. It also has enormous resources of nickel, gold, silver, platinum group metals and diamonds. In terms of production, Russia accounts for 9% of world oil output, 24% of natural gas, 20% of nickel and cobalt, 5%-7% of coal and iron ore, and a large proportion of platinum group metals, diamonds, apatite, potassium salts, and some non-ferrous and rare earth metals.

The Russian economy grew by 7.2% in 2003 following a GDP increase of 4.2% in 2002. Industrial production rose by 7% and agricultural production increased by 1.5%. Investment in fixed capital increased by 12.5%. Freight turnover in the transport sector rose by 7.4%, including a 10.2% increase in rail freight. Retail trade increased by 8%.

Foreign investment in Russia in 2003 totalled almost US\$29.7 billion, a 50% increase compared with 2002, of which US\$6.78 billion was foreign direct investment. The fuel sector received US\$5.31 billion in foreign investment, the steel sector US\$1.49 billion and the nonferrous metals sector US\$2.01 billion.

The iron and steel sector grew by 8.9% in 2003 compared with 3.0% in 2002. Production of pig iron, including blast-furnace ferroalloys, rose by 3.6% to 48.37 Mt. Crude steel production grew 4.7% to 62.71 Mt, and finished products, including export billets increased by 5.2% to 51.05 Mt. Exports increased by value from US\$6.41 billion in 2002 to US\$8.42 billion, and included: 11.21 Mt of semi-finished carbon steel products (US\$2.14 billion), 11.21 Mt of flat carbon steel products (US\$2.93 billion), 538,700 t of ferroalloys (US\$343.7 million), 4.66 Mt of pig iron (US\$607.7 million) and 17.04 Mt of iron ore and concentrates (US\$275.2 million).

In 2003, Russia exported 61.88 Mt of bituminous coal (US\$1.76 billion) and 3.5 Mt of coke (US \$238.7 million).

Russia's nonferrous metals output grew by 6.2% in 2003, although zinc output based on imported raw materials declined by almost 20%. By contrast, primary aluminium production from imported ores grew by 2.2%. Primary aluminium exports increased in 2003, but some other key nonferrous exports plummeted. Some 80% of the aluminium, copper and nickel produced was exported. Aluminium exports rose by 14% to 3.14 Mt but exports of refined copper were down by 21% to 407,600 t and primary nickel exports were also down, by about 15%, to 238,000 t. Virtually all exports were to countries

outside the CIS, and were valued at US\$3.32 billion for aluminium, US\$656.9 million for copper and US\$2.15 billion for nickel.

The Russian Natural Resources Ministry plans to submit to the Cabinet a Mineral Resources Bill in 2004. The new bill is designed to encourage mining companies to carry out mineral exploration. Currently, at least Rb15-Rb18 billion (US\$515-US\$620 million) is warranted in annual exploration spending but as little as Rb6.7 billion (US\$230 million) is actually due to be spent in 2004. The ministry also hopes to make better use of its geological database, and it is hoped to align the Russian classification of mineral resources with foreign codes. In particular, a classification in terms of metallogenic potential may be introduced.

In the summer of 2003, amendments to the Law on Production-Sharing Agreements and the Tax Code were introduced. The amendments state that production-sharing agreements (PSA) for the development of mineral fields will be signed if normal auctions on such fields failed to determine a winner. However, this procedure does not apply to sites on Russia's continental shelf, within exclusive economic zones or on sites made eligible for PSA under international treaties. For example, existing PSA projects in the oil and gas sector (Sakhalin-1, Sakhalin-2, Kharyaga, and for the Prirazlomnoye and the Caspian fields).

Towards the end of 2003, the government disbanded commissions set up to draft the terms for developing PSA for certain mineral deposits. Effectively, this means negotiations cannot be conducted regarding the development of the following mineral deposits on production-sharing terms: the Kuranakh group of gold fields in Yakutia; the Romashkinskoye oil field in Tatarstan; the Samotlor oil and gas condensate field in the Khanty-Mansii autonomous district; the Kirinsky prospect (Sakhalin-3 project); the Salym group of oil fields (Khanty-Mansii autonomous district); the Yurubchensky block (Yurubcheno-Tokhomskoye oil-gas condensate field, Evenkia Autonomous District); the Priobskoye oil field (Khanty-Mansii autonomous district); the Shtokmanovskoye gas condensate field (Barents Sea); and several others.

Nevertheless, a number of important mineral deposits are eligible to be produced under a PSA. For example, in May last year, President Vladimir Putin signed a federal law which makes the big Natalkinskoye gold deposit in the Magadan region eligible for production under a PSA. Natalkinskoye is Magadan's biggest gold deposit with the contained gold estimated at some 245 t. In 2002, the deposit yielded only around 1 t. A local company, Zo Rudnik im Materosova, holds the license to the gold deposit.

The new version of the Russian Customs Code abolishes, as of January 1 2004, the so-called tolling regime, whereby raw materials are temporarily imported to Russia, processed, and then exported. Under this system, which was widely used in Russia's aluminium industry, exports of aluminium produced through tolling carried zero VAT. Also, imports of alumina were not subject to duty. Companies now have to pay VAT of 18%, according to Article

185 of the new Code and this will place an additional financial burden on the aluminium industry.

The more positive news for aluminium producers is that in January 2004, Russia's Federal Energy Commission set fixed rail freight tariffs for eight years for all Russian aluminium companies. The tariffs have been fixed in dollars and will be in effect until December 31 2011. They apply to shipments of aluminium cargo within Russia to a number of important rail stations, including Krasnoyarsk and Achinsk-2.

In October 2003, the government approved Finance Ministry amendments whereby data relating to the production, sale and use of precious metals and gemstones are no longer classified as state secrets. The Finance Ministry said that declassifying this information meets its idea of a stage-by-stage liberalisation of the market for precious metals and precious stones in light of Russia's role in the Kimberley Process (diamonds) and its bid to join the World Trade Organisation. The amendments that the government approved concern Article 5 of the RF Law on State Secrecy. This removes data on the production, sale and use of precious metals and gemstones from the list of material subject to state secrecy.

This year, the government has approved export quotas for raw materials containing precious metals. Export quotas include 302,180 t of copper concentrate containing 1.43 t of gold and 55.04 t of silver shared between eight companies; 155,800 t of zinc concentrate containing 264.1 kg of gold and 21.406 t of silver shared by four companies; and 69,000 t of lead concentrate containing 560 kg of gold and 67.76 t of silver shared amongst three companies.

### **Iron ore**

Russian iron ore production rose by 6.8% in 2003 to 91.8 Mt. There was a 19% increase in agglomerate output to 5.2 Mt, iron-ore concentrate output rose by 9% to 87.3 Mt and pellet production increased by 10% to 32.9 Mt. The growth in production reflected higher domestic demand as well as strong export demand.

Output grew by 3.5% at Lebedinsky GOK, including a 2.2% rise in hot-briquette iron to 1.05 Mt. Mine and mill upgrades, including a US\$5 million renovation of the No1 concentrator, contributed to the production increase. In 2004, LGOK plans to increase concentrate and pellet output to 20 Mt and 9.5 Mt respectively, and to invest about US\$5.2 million. Gazmetall owns 81.5% of LGOK, and Novolipetsk Metallurgical Combine holds 11.96% of the stock.

Production increased by 19% to 17.97 Mt at the Mikhailovsky GOK. Output of concentrate rose by 20% to 15.63 Mt. Metalloinvest, which controls the mine, is launching a US\$500 million project to produce metallurgical briquettes at MGOK. The project is expected to be completed in 2007. The new production line will produce 2 Mt/y of briquettes and should generate at least US\$200 million in annual sales. This would double MGOK's overall sales.

Stoilensky GOK increased output of iron ore to 12.83 Mt in 2003, a rise of only 1.6%. Shipments of iron-ore concentrate amounted to 11.29 Mt and agglomerate shipments totalled 1.7 Mt. The modest increase were attributed primarily to greater efficiency and reduction of losses in processing and ore beneficiation. In February 2004, Novolipetsk Metallurgical Combine NLMK, (Russia's third-biggest steel mill) and SGOK signed a deal to create one of Russia's largest, vertically-integrated iron and steel companies. Metalloinvest, the holding company for SGOK, said shareholders would exchange 59.8% of the shares in SGOK for 15.5% of the shares in NLMK.

The leading pellet producer, Karelsky Okatysh (Kostomuksha GOK), increased output by 11% to 9.23 Mt. In February 2004, Karelsky Okatysh began operations at the northern section of the Kostomuksha deposit. The company plans to remove about 1.2 Mm<sup>3</sup> of overburden from Severny-2 in 2004, and mine about 500,000 t of ore. Bringing this section on stream will help increase production of pellets. In addition, the rail line built to Severny-2 will be part of the line to the next deposit - Korpanga, 5 km from this section, which the company intends to begin mining in 2005. Karelsky Okatysh is now completing construction of the railway and the 110 kV power line to Severny-2, and is building a storage yard from which ore will be shipped to the crushing and beneficiation mill.

Meanwhile, Russian metals group EvrazHolding plans to invest about Rb550 million (US\$18.6 million) over two to three years in the development of its resource base in Krasnoyarsk territory. The company plans to invest about Rb110 million at the Mulginskoye iron-ore deposit and up to RuR140 million at the Burlukskoye deposit. The company is also considering building a beneficiation mill at the Krasnokamenskoye mines that would increase iron content in secondary concentrate ore to 60%. The mill would start up in 2007. Krasnokamenskoye now produces primary concentrate with 43% iron content.

### **Aluminium**

Russia is among the world's leading producers of primary aluminium, and is the biggest producer in the CIS. In 2003, production grew by 3.9%, bauxite output rose by 6.6% and alumina by 3.0%. Two companies, RusAl and SUAL (which operates the Irkutsk and Uralsky aluminium smelters) account for over 85% of Russian aluminium production.

RusAl is one of the world's three largest aluminium companies. It accounts for over 70% of Russian primary output and about 10% of world output. The company controls the Krasnoyarsk, Bratsk, Novokuznetsk and Sayanogorsk aluminium smelters, the Achinsk alumina refinery and other downstream units. It also controls the Nikolayev alumina refinery in Ukraine. Its downstream units in Russia include the Dmitrov food packaging plant, the Rostar beverage can factory, the Belaya-Kalitva Metallurgical Production Association, and plants for aluminium building construction and household aluminium goods.

RusAl raised primary aluminium output by 4.3% to 2.59 Mt in 2003 and alumina production by 38% to 2.98 Mt. Sales grew by 12% to US\$4.5 billion.

Export sales increased from from US\$3.4 billion to US\$3.7 billion. RusAl plans to invest approximately US\$7 billion in production development over the next ten years. About US\$2 billion of that sum will be spent on new assets, US\$4 billion will go towards building new plants and US\$1 billion will be spent on modernising existing production facilities.

RusAl is interested in expanding its raw materials base and is looking at options for participation in bauxite and alumina projects in Russia and abroad. The company hopes to receive a licence to develop the Severo-Onega bauxite deposit in Arkhangelsk region, which has commercial reserves of 400 Mt. RusAl is also looking into developing bauxite deposits in Guinea, Australia, Brazil and Venezuela.

The Bratsk Aluminium Smelter (BrAZ), Russia's largest, increased production of primary aluminium by 1.6% to 930,539 t in 2003. BrAZ, located in the Irkutsk region, may introduce baked-anode technology, which could increase production by 400,000 t/y. The technology would also reduce electricity consumption and dramatically reduce pollution. The smelter is preparing a preliminary feasibility study according to which the new technology could be introduced by 2015. A final decision will be made after all aspects of the issue are studied. The smelter's current modernisation programme to 2015, which will cost about US\$200 million, calls for switching to dry anode technology, as well as the installation of automatic alumina feed and computerised control systems.

The Krasnoyarsk Aluminium Smelter (KrAZ), Russia's second largest, produced about 903,491 t of primary aluminium in 2003, 4.5% more than in 2002, thanks to labour productivity growth and technology improvements. KrAZ is pursuing a number of projects to improve environmental indicators and boost productivity. It is introducing dry anode technology, installing an automatic alumina feed system and switching to dry gas scrubbing. The smelter is also working on a programme to increase current strength in electrolytic cells. RusAl will invest US\$270 million in modernisation at KrAZ in the period to 2006, switching the smelter to dry anode technology and boosting primary aluminium output by 100,000 t/y.

The Sayanogorsk Aluminium Smelter (SAZ) in Khakasia, Russia's third largest smelter, produced 459,002 t of primary aluminium in 2003, up by 10.9%. RusAl will invest US\$750 million in construction of the second phase of the smelter (SAZ-2) for 310,000 t/y. The smelter is expected to come on stream at the end of 2005 or early in 2006.

Novokuznetsk Aluminium Smelter (NkAZ) produced 295,899 t of primary aluminium in 2003, up by 2.8%. NkAZ aims to raise primary aluminium output by 1.4% in 2004 to just over 300,000 t, and is budgeting US\$12.5 million for upgrades designed to boost output of casthouse products for the construction and automobile industries. NkAZ plans to install two rotating mixers, a continuous-casting machine and a casting belt for 8.1 kg and 15 kg ingots. It also plans to buy pot-house equipment and new automated control systems.

Achinsk Alumina Plant, RusAl's only Russian alumina refinery, produced 1.05 Mt of alumina, up by 1.7%.

The SUAL Group includes 19 companies in Russia's aluminium sector that are managed by SUAL Holding, including the Bogoslovsky, Uralsky, Irkutsk, Volgograd, Nadvoitsy, Volkhov and Kandalaksha aluminium smelters. The group also mines bauxite, and produces alumina, primary aluminium, silicon and aluminium products.

SUAL Group raised primary aluminium output by 28% to 890,000 t in 2003. Production grew at all smelters, but the significant overall increase followed the integration of the Volkhov and Volgograd smelters at the end of 2002, smelting upgrades and a general improvement in the performance of all units. Bauxite mining increased by 6.8% to 4.4 Mt in order to meet growing demand from the enterprises. Sredne-Uralsky Mine (SUBR) increased output by 4.8% to 3.44 Mt and Boksit Timana by 35% to 985,100 t. Sual's alumina production rose by 17% to 2.04 Mt, thanks to the inclusion at the end of 2002 of the Pikalyovsky Glinozyom enterprise, the successful implementation of a programme of upgrades, and development and overall technological improvements. The Bogoslovsk refinery produced 1.08 Mt of alumina, Pikalyovsky Glinozyom just over 249,000 t and Uralsky about 714,400 t.

The Irkutsk Aluminium Smelter (IrkAZ) produced 282,310 t of primary aluminium in 2003, 2.3% more than in the previous year. The smelter exported 87% of its output. Production this year will be broadly unchanged. The Sual Group will invest US\$524.2 million at Irkutsk between 2005 and 2010, and aims to raise output to 484,800 t/y.

Bogoslovsk Aluminium (BAZ) in the Sverdlovsk region, produced 183,440 t of aluminium, little changed from 2002. However, over the next five to seven years, BAZ plans to raise alumina production by 50% to 1.5 Mt/y and aluminium output nearly three-fold to 540,000 t/y. The increase will be achieved by modernising existing potlines and adding new ones. The modernisation of the four existing potlines should be completed by 2005 and should increase capacity by 85,000 t/y. It should also reduce pollution, as well as alumina and energy consumption.

The Uralsky Aluminium Smelter (UAZ-SUAL) produced 103,260 t of aluminium in 2003, 11.3% more than in 2002. UAZ-SUAL completed two electrolysis units and launched 56 electrolytic cells, as well as bringing in gas-cleaning equipment to reduce atmospheric emissions and to improve the environment in the city of Kamensk-Uralsky.

The Volgograd Aluminium Smelter increased output by 2%, to 151,170 t in 2003. Nadvoitsy produced 75,790 t, up 2.3%, Volkhov 22,610 t, up 2.3%, and Kandalaksha 71,280 t, unchanged from the preceding year.

### **Nickel and copper**

Nickel-cobalt production increased by 5.3% in 2003, with extraction of nickel ore up by 1.8%, nickel output up by 8.9% and cobalt production up by 9.2%.

In the copper sector, output of copper in concentrate was down by 2.6% and refined copper output was 3.2% lower. Domestic consumption showed a 25% jump for nickel but a 28% slump for copper.

Norilsk Nickel Mining and Metallurgical Co (Norilsk Nickel MMC) is the world's largest producer of nickel, cobalt and platinum group metals. The company has more than a 20% share of the global nickel market, more than 50% of the palladium market, and substantial shares of the markets for copper, cobalt, rhodium and a number of other metals. Norilsk produces 91% of Russia's nickel, 57% of its copper, 80% of its cobalt and 95% of its PGM. The Interros group is the biggest shareholder.

Norilsk boosted sales of base and precious metals by almost one third to US\$5.21 billion in 2003. It sold 309,000 t of nickel, 467,000 t of copper, just over 30 t of gold and all the platinum and palladium it produced.

This year, the company expects to sell up to 265,000 t of nickel, carbonyl nickel and other nickel-related products, and expects to produce 250,000 t of commercial nickel. Of this total, about 240,000 t this will be exported and the remainder sold on the Russian market. In 2003, the company shipped 61% of its nickel to Europe, 25% to Asia and 5% to the domestic market. Norilsk Nickel sold 467,000 t of copper in 2003, and plans to maintain copper sales in 2004 at last year's level.

Urals Mining and Metallurgical Company (UGMK) is the second major copper producer in Russia. The holding company includes a number of the largest copper smelters in the Urals, and controls a total of 22 companies. UGMK produces 40% of Russia's copper, and exports more than 70% of its output. Uralelektromed, Mednogorsk Copper-Sulphur Combine, Svyatogor, the Sredneuralsk Copper Smelter, Gaisky and Uchalinsky GOKs, are key enterprises of UGMK. UGMK invested about US\$70 million in overhauls and upgrades in 2003. UGMK copper holding is backtracking on plans to consolidate and convert its members to a single share in 2004.

The Uralelektromed copper smelter in Sverdlovsk region plans to complete a Rb22 million overhaul of one of the two shaft furnaces in its polymetal division. The overhaul will keep the furnace operating smoothly for the next two years. The furnace produces blister copper.

The Sredneuralsk Copper Works (SUMZ) produced 84,902 t of blister copper in 2003, 20% less than in 2002. SUMZ plans to increase production of blister copper by 2% in 2004. It also expects to produce 475,000 t of sulphuric acid and 48,000 t of sodium tripolyphosphate, respectively 6.4% and 0.5% more than in 2003. It plans to recycle 1.04 Mt of slag, yielding 5,567 t of copper in concentrate. SUMZ plans to increase spending on repairs by 3% to Rb330 million (US\$11 million) in 2004.

Gaisky GOK raised output of copper in copper concentrate by 5.1% to 76,182 t. Production of zinc in concentrate fell by 6.9% to 11,797 t, and production of sulphur from iron pyrites grew by 38.5% to 161,640 t. Crude ore production

increased 3.5% to 5.233 Mt: open-pit production at the Letneye deposit more than doubled to 891,000 t and deep-mine production edged up 0.5% to 3.89 Mt of ore. The concentrator met all of its 2003 targets. Gaisky GOK's capital expenditures increased by 68% to Rb227 million (US\$7.6 million). It began work on a crushing-conveyor complex, overhauled its crushing division, and installed new flotation machines at the mill. Gaisky GOK is UGMK's biggest mine. It exploits the Gaiskoye copper deposit, which contains 76% of the Orenburg region's copper reserves.

Svyatogor, a copper smelter in the Sverdlovsk region, produced 60,765 t of blister copper in 2003, 1.2% less than in 2002. However, production of copper in copper concentrate rose by 2.4% to 25,168 t, zinc in zinc concentrate by 13% to 3,374 t, and iron in ferrovanadic concentrate by 200% to 26,300 t. The smelter also produced 250,571 t of sulphuric acid. Svyatogor mined 708,000 t of ore at the Volkovskoye deposit, a 47% increase on 2002, and processed 1.74 Mt, including ore from outside suppliers. Svyatogor plans to maintain production of blister copper at 60,700 t in 2004. The smelter uses raw materials from the Uchalinsky mining and beneficiation combine, the Safyanovskoye deposit, and the Volkovsky and Turyinsky mines. In future, there are plans to begin using copper ores from new deposits – the second phase of the Volkovskoye deposit, as well as the Tarnyorskoye copper-zinc deposit.

UGMK plans to spend US\$32 million putting the Tarnerskoye copper-zinc deposit into production, and has also started preparations for a state-of-the-art mine. The north of the Sverdlovsk region is home to the Severnaya (or Northern group) deposits, the largest explored copper-zinc ore fields in the Urals. The Tarnyorskoye field will yield around 800,000 t/y of copper-zinc ore containing 12,000 t of copper. UGMK's Svyatogor unit will mill the ore. Costs should take seven years to recoup. The mine should be running at full projected capacity for 800,000 t/y of ore by November 2005.

Uchalinsky GOK, a copper-mining company in Bashkortostan, reduced copper concentrate production by 6.7% to 306,980 t in 2003 as a result of lower ore grades. The concentrate contained 46,000 t of copper. Production of zinc concentrate increased by 8.3% to 237,500 t. Zinc in concentrate totalled 106,900 t, 5% more than in 2002. The company mined 4.8 Mt of copper-pyrite ore, up 5.4%, including 995,200 t from the open pit. The company increased the level of investment in its mines and concentrating facilities by 5.9% to Rb565.2 million (US\$18.8 million). Bashkortostan's State Property Committee owns 38% of the shares in Uchalinsky and UGMK controls another 38%.

The third-largest Russian refined copper producer is Kyshtym Copper Electrolyte Works (KMEZ) in the Chelyabinsk region. KMEZ increased production of refined copper by 3.3% to 78,780 t in 2003. Production of rod rod jumped 17.7% to 10,300 t and wire by 63.5% to 2,590 t. The works raised briquette ore concentrate production 3.1% to 140,430 t but reduced production of copper sulphate by 2% to 554 t, and production of copper vitriol by 2.6% to 10,230 t. Gold production rose by 33%, platinum by 270% and

palladium by 60%. Silver output fell by 12%. Employees own 52% of Kyshtym, East Point Holdings Ltd of Cyprus 28% and the local Chelindbank 10%.

The Karabashmed copper smelter also in Chelyabinsk, increased blister copper output by 7.4% to 45,573 t. Karabashmed plans to raise blister copper production, tentatively by 5.3% in 2004 to 48,000 t. Kyshtym Copper Electrolyte Works currently owns 80% of the shares in Karabashmed.

The Ural Mining Co is being established and will become the third- largest copper producer in Russia after MMC Norilsk Nickel and Urals Mining and Metallurgical Co. The new holding company will include KMEZ, with annual capacity to produce 75,000 t/y of cathode copper; the Novgorod Metallurgical Plant with a capacity of 60,000 t/y; and an oxide ore processing plant in the Sverdlovsk city of Polevskoi. There are plans to build another smelter for 10,000 t/y of cathode copper at the Gumeshevskoye copper deposit. The combined capacity of the new holding's three smelters, at about 145,000 t/y of cathode copper, is approximately equivalent to that of one electrolysis division at UGMK.

### **Lead and zinc**

In 2003, lead-zinc output fell by 1.3%. Lead in concentrate production grew by 8.8% but lead metal output, including secondary lead, increased by only 0.3%. Zinc in concentrate fell by 2.0%, and production of metallic zinc fell by 1.5%.

Chelyabinsk Zinc Works (ChTsZ), Russia's biggest zinc producer, raised zinc output by 7% to a record 177,336 t. Zinc sales totalled Rb4.09 billion (US\$136 million). The works produces 60% of Russia's metallic zinc. ChTsZ plans to begin making products with more added value but this will not alter the intention to overhaul the core production lines, especially the project to build the No.5 Welz furnace complex. Companies close to Chelyabinsk Pipe Rolling Mill (ChTPZ) acquired an 87% stake in ChTsZ from the Vitol group in July 2003.

In February 2004, ZAO Tekhprominvest won an auction for the rights to the Ozernoye polymetallic ore field in Buryatia. Ozernoye, in the Yeravna district of Buryatia, possesses 104.96 Mt of proven B+C1 ore and 23.2 Mt of C2 ore, with an average content of 37.6 g/t Ag, 6.57% Zn, 1.25% Pb, 20.82% sulphur pyrites and 0.017% Cd. Primary ores contain 96% of the total reserves. The deposit is in the second category according to geological complexity, and minimum ore recoveries will be 79% for zinc and 46% for lead. Plans for the commercial development of the Ozernoye deposit must be drafted within 18 months of the licence being registered. The first stage of the mine (at least 1 Mt/y) must go on stream within four years, and the whole mine (>6 Mt/y), within eight years.

Meanwhile, Buryatia plans to announce a repeat auction for the right to explore and mine gold and zinc sulphide in the Nazarovskoye field, and to hold a tender for the Kholodnenskoye field, which is Russia's biggest lead and

zinc field. Nazarovskoye's reserves were listed in 1982 as 5.9 Mt of C1+C2 ore containing 465,000 t of zinc and 11.2 t gold, and 6.8 Mt of probable P1 ore. The average metal content of the ores is 7.84% Zn and 0.8 g/t Au. Recoveries of at least 79% are required for the project to be viable.

Mining operations began at two zinc deposits in Altai territory, with combined proven reserves of 32 Mt. Work started at the Poteryaevsky mine, where a mining and milling combine will come on line in 2004. The deposit has total reserves of 3 Mt, and is expected to mine 300,000 t/y on average. Operations at the larger Korbalinsky mine will begin in 2004. The licence was transferred to Altai Polymetals, in which the regional administration holds a 5% stake. Korbalinsky holds an estimated 29 Mt of zinc ore, and is expected to mine 1 Mt/y. A mining and milling combine will be launched at this site in 2005.

First Mining Co of Moscow has revised estimates of reserves at the Pavlovskoye lead-zinc deposit in the Novaya Zemlya archipelago in Arkhangelsk region. The reserves are now estimated at 2.5 Mt of total lead and zinc. In 2002, the Mineral Reserves Commission at the Natural Resources Ministry confirmed the reserves of the deposit at 1 Mt of lead and zinc. However, First Mining cannot actually explore for additional resources because it does not have a licence to explore. It plans to build a mine and mill to produce a lead and zinc concentrate. Major foreign and Russian companies, including Norilsk Nickel and the Chelyabinsk Zinc Plant, have shown interest in the project.

### **Tin**

In 2003, tin in concentrate production increased by 5.2%, but metallic tin output (including secondary metal) decreased by 18.6%.

The Novosibirsk Tin Combine (NOK), Russia's biggest tin producer, plans to produce 4,700 t of tin products in 2004, up from 4,100 t in 2003. NOK is increasing borrowings by almost US\$7.5 million, with a bond issue and planned bank loans. NOK plans to open a credit facility of approximately US\$4 million with Siberia's Sberbank. NOK's main shareholders are ZAO Prado with 34.68% of the shares, ZAO Pod Strokoï with 9.75% and ZAO Sibirskaya Mnogoprofilnaya Kompaniya with 19.93%. The Depository and Clearing Co holds 12.94% of the shares.

Vostokolovo and Dalolovo, the mining and milling subsidiaries of NOK, plan to increase deliveries of raw material to NOK by 90% to 1,500 t in 2004. Deliveries of tin in concentrate from these units, which were set up with assets of the Solnechny GOK mining and milling combine in Khabarovsk territory, are expected to increase further to about 2,000 t in 2005. Mine production will increase by stepping up operations at the existing Molodyozhnoye and Perevalnoye deposits, as well as by bringing production at the Pravouimiiskoye deposit up to commercial levels. Thus far, Pravouimiiskoye has only been a seasonal operation utilising small mining crews. Preparations are now under way for larger-scale operations, for which equipment is being bought and infrastructure is being built. NOK expects the deposit to produce 400-500 t of tin concentrate in 2004. There are also plans

to modernise the beneficiation mill used by Vostokolovo and Dalolovo, in order to increase capacity from 350,000 t to 450,000 t/y of ore.

Stannum Chemicals Ltd, a UK-Russian joint venture to produce tin-based compounds for the chemicals industry, will start up in 2004. NOK and Russian Tin Sales Ltd of the UK, founded Stannum Chemicals with equal stakes. Stannum Chemicals is constructing a plant on NOK's premises to make tin tetrachloride. The first phase of the project will have an annual capacity of 3,000 t, with the potential for expansion to 5,000 t/y.

Meanwhile, in January 2004 the Russian Government imposed an import duty on tin and tin products amounting to 5% of the customs value, but not less than €0.2/kg.

### **Titanium**

Russia does not mine titanium-containing ores for titanium production and has to import ilmenite concentrates from Ukraine, despite possessing several titanium deposits, both alluvial and lode. Some of them are being prepared for commercial development, but preparation is being hampered, above all, by severe lack of finance. The ilmenite-rutile deposits closest to coming commercially on stream are Turganskoye (Tomsk region), Tarskoye (Omsk region), the eastern section of the Tsentralnoye deposit (Tambov region) and the Itaman section of the Lukoyanov deposit.

VSMPO, the world's biggest titanium producer, raised exports by 7.7% to 11,353 t in 2003. Overall sales increased by 3.9% to 15,410 t. Core sales revenues grew by 1.8% to US\$263 million. VSMPO sells 70% of its output under long-term deals with Boeing, Airbus Industries, Aircraft Engines, Rolls-Royce and others.

Despite the uncertainty on the world titanium market, VSMPO aims to boost the value of output by 12.6% this year and sales tonnage by 17.3%. The company hopes to increase titanium sales by 17.3% to 18,077 t, and to export 13,521 t, or 19% more than in 2003.

VSMPO plans to spend €70 million on a new facility to mechanically treat products for the aerospace and electrical engineering industries. It will probably borrow €35 million for the project, which is designed to secure new markets and boost competitiveness.

VSMPO-Avisma titanium group and SUAL, the country's second-largest aluminium producer, plan to complete the development of a long-term cooperation programme concerning the production and sale of products made from aluminium, titanium, special alloys and steels, primarily for use in the aerospace industry. The programme will involve VSMPO and SUAL's Kamensk-Uralsky Metallurgical Plant.

Meanwhile, Geostar, which holds the licence to the Lukoyanovskoye titanium-zirconium deposit in the Nizhny Novgorod region, is upbeat about starting to build a long-awaited mine and mill at the deposit towards the end of 2004,

despite objections from the regulatory bodies. Garantia now owns 13.29% of Geostar, the Arzamas Experimental Co owns 79.2%, and state-owned Gorky Railway 7.33%.

The combine's first phase is supposed to be built by 2006 at a cost of about US\$20 million, and will initially mine 480,000 t/y of sand for 30,000 t/y of concentrate. Eventually, sand mining could increase to 2 Mt/y. The Lukoyanov skoye deposit is one of the largest titanium-zirconium deposits in Russia, and the richest in terms of zirconium content. The mineral sands contain zirconium, rutile and an ilmenite-chromite-haematite product. Beneficiation could also produce moulding, glass and construction sands.

### **Magnesium**

In 2003, Russia increased production of titanium sponge by 8.1%, output of magnesium and magnesium alloys grew 2.2%. Magnesium is produced in Russia by Avisma Titanium-Magnesium Combine and the Solikamsk Magnesium Plant (SMS) both based in the Perm region in the Urals.

At Berezniki, Avisma has begun casting large magnesium ingots. For this purpose, the company bought a special casting complex capable of 8,000 t/y of ingots. Installing and mounting the complex's equipment cost roughly US\$6 million. Avisma is one of Russia's biggest producers of magnesium and magnesium alloys, and also one of the world's biggest producers of titanium sponge (30% of all world production). The combine turns out high-quality titanium sponge used in the aerospace, shipbuilding, oil and chemicals equipment-making industries, in energy and the production of special-alloy steels.

Ownership of Russia's second biggest magnesium producer, SMZ, passed to Silvinit, a local fertiliser producer. Silvinit purchased a 20% stake in SMZ from the Russia Growth Fund. Along with affiliates, it now holds a controlling stock interest of 56%. SMZ exports almost all its rare-earth metal products, and about 60% of its magnesium and alloys.

### **Gold**

Russia increased its gold output in 2003 by 3.5% to 176.90 t. Mine production edged up by 1.27 t to 159.92 t and incidental or by-product gold output grew by 4% to 10.15 t. Recoveries from scrap or secondary production, however jumped, by 4.29 t to 6.94 t.

For the first time since 1995, Russian geologists found more commercial gold reserves last year than the country mined. Commercial C1+C2 discoveries exceeded gold extraction by 6%. About 75% of the growth in gold reserves was in five regions: Krasnoyarsk territory, Yakutia, Irkutsk region, Khabarovsk territory and Magadan region. Growth in hard-rock gold reserves was about 166 t. The Anticipated growth in gold reserves in traditional placer-mining regions is 20.6 t for C1 gold and 21 t for C2 gold.

Some 900 enterprises mined or produced gold in 2003. The industry's 27 biggest companies produced more than half of the gold, but the bulk of the enterprises individually produced less than 100 kg.

Commercial banks bought nearly all of the gold produced. Of a total of 53 banks that traded gold in 2003, just five banks bought over 62% of the gold. The five banks were: state-owned retail monopoly Sberbank; state-owned Vneshtorgbank; Nomos Bank; Alfa Bank; and Rosbank, which is owned by gold producer Norilsk Nickel's major shareholder, Interros. The ten-largest gold-buying banks bought 80% of the gold produced.

Russia reduced gold exports last year by 21.5% to 150 t. There had been a rush to export gold in 2002 because the 5% export duty on the metal had just been lifted.

Russia's top-five gold-producing regions in 2003 were Krasnoyarsk, Magadan, Yakutia, Khabarovsk and Irkutsk. The Krasnoyarsk territory was Russia's biggest gold-producing region with 30.05 t, or 2.5% more than in 2002. Norilsk Nickel's subsidiary, Polyus, mined 26 t.

The Magadan region produced 27.12 t, down from 33.54 t in 2002. Hard-rock gold production fell from 19.14 t to 13.45 t, and placer output dipped slightly, to 13.67 t (from 14.4 t). The production decline was anticipated because of depletion of reserves at the large Kubaka mine in which Kinross Gold of Canada owns a 98% interest via Omolon Gold Co. Mining companies shipped a total of 27.84 t of gold to the Kolyma refinery, 6.29 t less than in 2002. Of the total amount shipped, 24.8 t was from some 170 local enterprises, with the remainder shipped from operations in Yakutia and Chukotka. In 2004, Magadan is expected to produce some 27.29 t of gold.

Yakutia reported the biggest increase in mine production, up 2.78 t to 20.30 t. Most of the increase was in hard-rock production which rose by more than one third, to 8.93 t. Only ten of the 94 enterprises that mined gold in 2003 were hard-rock producers. AldanZoloto Mining Coy was the biggest, with output up by 900 kg to 4.87 t. Artels or mining cooperatives also produced significant amounts of gold. The Seligdar artel produced 1.62 t, Zapadnaya 1.27 t, Nirungan 1.16 t and Zolotinka 0.93 t.

The Irkutsk region increased output by 2.8% to 16.63 t. Lenzoloto produced 9.4 t of placer gold, up 1.7%, and this included 1.8 t at its Lensib subsidiary and 1.75 t at Svetly. Hard-rock gold production jumped by 88% to 777 kg, with Pervenets contributing 356 kg, Golets Vysochaishy 255 kg and Sukhoi Log 134 kg. Among the co-operatives the biggest producers were Vitim with 2.3 t, up 5.5% from 2002, and Lena with 1.41 t, an increase of 25%.

Production in the Khabarovsk territory rose by 16% to 17.68 t. Production in the Amur region grew by 3.2% to 13.10 t; in Buryatia it was little changed at some 8.06 t; in the Sverdlovsk region production fell by 4.7% to 7.34 t; in Chukotka production was unchanged at 4.78 t; in Khakasia it jumped 11.1% to 1.89 t; and in Tuva, it was unchanged at some 1.22 t. The Chita region

raised output by 12.2% to 6.18 t and the Chelyabinsk region raised output by 19.1% to 3.71 t.

Russia's hard-rock gold production could increase by 3-5 t in 2004 as production at new mines gathers momentum. Although production at Kubaka is set to fall by 1.5 t, other producers, notably Okhotskaya Mining and Geological Co and Serebro Magadana in Magadan, will raise output. The Darasun group of gold deposits is expected to contribute as much as 1,000 kg to the overall increase, and production should continue to rise at hard-rock operations in Irkutsk.

Norilsk Nickel's 100%-owned subsidiary Polyus Gold Co has launched the Titimukhta gold project in Krasnoyarsk territory. The project site is located close to the large Olimpiada hard-rock deposit, currently the main source of Polyus' gold. Titimukhta should, in time, yield 2 t/y of gold, as stipulated by the licence which Polyus won at a tender last autumn. The Titimukhta deposit, discovered in 1990, includes five ore bodies with C2 reserves of 34.28 t of gold and P1 resources of 5.93 t. The average grade is 2.2-9.5 g/t Au. The deposit is amenable to open-pit mining and Polyus' 20-year licence stipulates that geological work at Titimukhta must be completed no later than 2005. The development proposal must be approved no later than 2006, and the mine is supposed to achieve capacity by 2007.

In February 2004, Bema Gold Corp of Canada released a preliminary appraisal of reserves at the Kupol gold-silver deposit in Chukotka that indicates the deposit is significantly bigger than Russian geologists have estimated. Bema estimated proven C1+C2 gold reserves of 1.83 Moz oz or 56.8 t contained, and proven silver reserves of 19.1 Moz or 594 t. Kupol holds probable P1+P2 reserves of 131.5 t of gold and 1,738 t of silver. Russian geologists have estimated Kupol's reserves at 30 t gold and 300 t silver.

UK-based Highland Gold Mining Ltd (HGM) started to put the mothballed Novoshirokinskoye gold and polymetallic deposit in Russia's Chita region back on stream in a project costing US\$25 million. The costs should be recouped in six to seven years, and the mine should achieve full capacity of 2 t/y in 2006. Novoshirokinskoye contains a proven 1 Moz of gold in predominantly lead-zinc sulphide ores averaging 5.8 g/t Au, plus probable reserves of 1.8 Moz at 6.1 g/t Au equivalent.

Alrosa Investment Group's Yakutia Mining Co received a five-year licence to study and appraise reserves at the Kyuchyus gold deposit. Kyuchyus, formerly licenced to a joint venture involving Pinnacle Resources of the UK, contains a proven 136 t of commercial C1 gold based on an average grade of 9.8 g/t for Au, and a probable reserve of 450 t, some of it amenable to open-pit mining.

Based on recent drilling at its Veduga gold project in the Krasnoyarsk territory and a re-evaluation of the resource base of its Asacha project in Kamchatka, Trans-Siberian Gold plc (TSG) has increased its resource base by 7% to 3.2 Moz of contained gold. Total resources at Veduga have increased to 14.1 Mt

at 5.09 g/t Au, from 13.5 Mt at 4.92 g/t Au. Resources at Veduga now amount to 2.3 Moz, an increase of 8%.

An auction for the right to develop the giant Sukhoi Log deposit in Irkutsk is likely to be held in the third quarter of 2004. Reserve estimates, dating from 1977, total more than 1,000 t of gold, with the deposit averaging 2.7 g/t Au. Sukhoi log also contains platinum, palladium and rhodium, and various estimates have put development costs in the US\$0.7-US\$1.5 billion range.

### **Silver**

More than 90% of silver mined in Russia is produced as a byproduct of nonferrous metals production, and almost no silver deposits are being developed. Russia has so far only one major, prospected silver deposit – Dukat in Magadan region. Dukat contains a proven reserve of 14.3 Mt at an average grade of 655 g/t Ag and 1.39 g/t Au, of which 10.3 Mt average 667 g/t Ag and 1.4 g/t Au. The entire field is estimated to contain about 15,000 t of silver and at least 35 t of gold.

Norilsk Nickel is one of the country's biggest producers of by-product silver. Russia's biggest silver-producing regions are the Krasnoyarsk territory, Bashkortostan, Chelyabinsk region, Orenburg region and Primorye territory, all home to major nonferrous metals producers.

Silver exports soared from 514 t in 2002 to 800 t in 2003.

Subsidiaries of St Petersburg-based Polymetal (MNPO Polimetall) operating in the Magadan region increased production of silver by 250% to 410 t and gold output by 110% to 1.34 t. The increase propelled Polymetal to become Russia's largest silver miner, accounting for more than 90% of silver mine output in Magadan region and about 60% nationwide. Polymetal also became one of the top ten silver-mining companies in the world. Russia produced 33.8 Moz of silver in 2003, according to preliminary figures from UK-based GFMS.

Polymetal has two subsidiaries in Magadan: Srebro Magadana, which mines the Dukat silver deposit; and Srebro Territorii, which holds the licence to the Lunnoye gold and silver deposit with 14.7 t of gold and 3,010 t of silver.

In October 2003, Okhotsk Mining and Geological Co (OGGK), a division of Polymetal, launched a mining and metallurgy complex at the Khakandzhe gold and silver deposit in Khabarovsk territory. The complex will produce about 4 t of gold and 80-85 t of silver annually once it achieves capacity. The complex can process 1,400 t of ore containing an average 6.4 g/t Au and 288 g/t Ag. OGGK holds the licence to Khakandzhe, which has C1+C2 reserves of 59.63 t of gold and 2,668 t of silver.

### **Platinum group metals**

Russia is the world's biggest producer of platinum group metals (PGM). It provides over 70% of the world's palladium, 20% of its platinum and a considerable volume of rhodium.

Norilsk Nickel produces most of Russia's PGM. The key facility, the Norilsk Combine, produces platinum and PGM concentrates which are refined into bullion at the Krasnoyarsk nonferrous metals plant. Norilsk Nickel produces around 40%-60% of the world's PGM. Palladium and rhodium account for around 80% of the company's PGM sales, and platinum makes up the other 20%.

Norilsk Nickel will produce 83 t of palladium in 2004. Estimates of Russia's palladium exports this year vary: Johnson Matthey estimates 90 t and HSBC 85 t.

Norilsk Nickel will invest US\$40 million annually over the next few years to develop hydrogen energy and fuel-cell technology using palladium, and has signed an agreement with the Russian Academy of Sciences (RAS) to cooperate on the funding, development and implementation of priority high-tech projects. These aim to develop competitive equipment and materials that could replace imports. Top priorities are highly efficient, environmentally clean engines and generators powered by fuel cells, key elements of hydrogen energy infrastructure, and high-tech products and production processes, which would use palladium and other PGM. Norilsk Nickel and RAS will also work together to develop new technologies for mining, enriching and processing complex ores at the company's enterprises. Initial research funding will be comparable to what the International Platinum Association spends annually on promoting platinum - up to US\$40 million.

Koryakgeoldobycha, Russia's second-biggest platinum producer, sustained production of placer platinum in 2003 at about 2002's level, reportedly in excess of 3 t.

Russia's Natural Resources Ministry is to issue three licences to explore for PGM in the Murmansk region. Kola Mining and Geological Co, which is 90%-owned by Consolidated Puma Minerals of Canada, would receive a licence to study the East Pana property, and Terskaya Mining Co. licences for the Monchetundrovsky and West Imandrovsky areas. Puma is exploring the East Pana copper-nickel property in the Murmansk region, the ores of which have a significant platinum metal content. The company planned to spend US\$1 million on studying the deposit during 2004. Drilling and collection of samples at the Pana intrusion are being conducted for Puma by the Geological Institute KNTs RAN and the Kola Geological Information-Laboratory Centre, both in the city of Apatity. According to the Ministry of Natural Resources, the eastern section of the Pana intrusion contains occurrences of low-sulphide PGM ore which average between 2 and 24 g/t Au +PGM. The ores also contain a small amount of nickel, copper and cobalt.

### **Diamonds**

Almasy Rossii-Sakha (Alrosa) accounts for nearly 100% of rough diamond production in Russia. The company mines a quarter of the world's diamonds and its deposits contain diamond reserves sufficient for the next 40-45 years at a sustained annual production rate of about US\$2 billion.

Alrosa produced some US\$1.61 billion worth of rough diamonds in 2003, compared with US\$1.47 billion in 2002, including output from the subsidiaries Alrosa-Nyurba (US\$103.6 million) and Almazy Anabara (US\$22.4 million). Alrosa plans to boost mine production by 19% in 2004, and to increase rough diamond sales by 43% to US\$2.18 billion.

The company's existing mining capacity, however, is decreasing because a number of its open pits are nearing the end of their life. Alrosa's biggest projects up to 2005 are to bring the Internatsionalny mine to full capacity, to build deep mines at the old Mir and Aikhal diamond pipes and to start development of a mine at the Udachnaya pipe. Udachnaya would be capable of processing 5 Mt/y of ore, making it one of the world's biggest diamond mines. Alrosa is implementing a five-year, US\$2.3 billion development programme to build the deep mines. It plans to borrow US\$1.1 billion and to provide the remainder itself.

Nizhnelenskoye, a small diamond producer from north Yakutia, increased diamond production by 30% to US\$35 million in 2003. In mid-2003 it commissioned a new beneficiation plant at the Belyakh placer diamond deposit in northwest Yakutia. This is the second small plant in the field, which stretches about 40 km. The first plant was commissioned in 2000. Nizhnelenskoye, in addition to producing diamonds at Belyakh, is also developing the Molodo placer diamond deposit. The company is entirely state-owned and was established in 1994. It was restructured as a joint stock company in 2002 with the state retaining 100% of shares.

KDM-Olenek has secured a licence to develop two diamond deposits – Khara-Mas and Talakhtakh in north Yakutia. Khara-Mas contains 208,580 ct of C1 diamonds, 57,950 ct of C2, and forecast reserves of P1 amount to 1.033 Mct. The diamonds comprise 63% gem quality by value, and 44% industrial diamonds by weight. The Talakhtakh has C1 reserves of 9,370 ct, C2 reserves of 50,640 ct and expected P1 reserves of 1.14 Mct. By value and weight, the deposit contains respectively 66.5% and 64% near-gem diamonds, and 32.4% and 17.2% gem quality diamonds. KDM-Olenek was set up in the city of Yakutsk in order to bid in the tender by the Precious Metals and Precious Stones Committee of Yakutia and the administration of Yakutia's Olenek district.

In March 2004, Severalmaz, which holds the licence to the big Lomonosov diamond field in the Arkhangelsk region, placed two-year credit notes (issued by ING Bank NV) worth US\$100 million, at 8.88% per annum. The placement was with 25 investors, most from the UK, Asia, Russia and Switzerland. The money raised will go towards completion of a 1 Mt/y capacity mill and the initiation of a second phase development involving a 4 Mt/y capacity second mill due for completion by the end of 2004. The Lomonosov field was discovered in 1980 and contains an estimated US\$12 billion worth of diamonds, more than 50% being of gem quality. The first commercial diamonds are expected in 2004, and full-scale commercial development is scheduled to begin in 2006. Around 5.6 Mt/y of ore will be mined. Project costs are US\$344 million and the estimated pay-back period is five to six

years. Alrosa has the controlling interest in Severalmaz, the Arkhangelsk regional administration owns 5.1% of the shares and minority holders own 2.6%. Alrosa has said it intends to seek a foreign partner to put the field fully on stream.

### **Coal**

Russia's current commercial coal reserves exceed 200,000 Mt; about half are bituminous and 38,000 Mt are coking coal. Deposits are characterised by complex mining and geological conditions, such as disrupted and flooded seams; a high gas content and risk of explosion; a tendency to self-ignition; and a significant proportion of the reserves are contained in inclined seams.

Russia produced about 275 Mt of coal in 2003, up by 7.6% from 2002. The increase was as a result of growing global and domestic demand for fuel. Output of coking coal increased by 9.2% to 69.5 Mt. Exports increased from 50 Mt to 57.8 Mt, and included 10.3 Mt of coking coal. Demand for Russian coal abroad was strengthened in part by the shortage of crude oil caused by the war on Iraq.

The coal-rich Kuznetsk basin raised production by 9.2% to 143.4 Mt; the Kansk-Achinsk basin increased output by 11% to 37.6 Mt; and mines in the Pechora basin raised output by 3.8% to 13.6 Mt. Production in the Russian section of the Donets basin slumped by 18% to 6.9 Mt, partly as a result of the accident at the Zapadnaya-Kapitalnaya mine in October 2003 and partly because coal mining in the basin has become uneconomic, not least because mining conditions are difficult.

The government is not allocating all of the funding it has earmarked for pit closures, and this problem is expected to escalate during 2004 because the budget has been reduced, even though more pits are scheduled for closure.

### **Oil**

Russia has not disclosed official estimates of its oil reserves. Various estimates suggest that its proven reserves are equivalent to 9%-12% of total world reserves. Russia's extractable oil reserves are spread over 1,900 oil fields, of which only 170 can be classified as major fields (where the bulk of resources are located).

In 2003, Russia's increase in oil reserves was greater than oil production, the reserves:production ratio amounting to 103%, much better than in previous years. Proven geological oil reserves increased by 380 Mt. Production increased by 11% to 421.38 Mt, with the country's vertically integrated producers contributing 383 Mt, an 11% increase over the preceding year. The largest producers were: Yukos, 81 Mt; Lukoil, 79 Mt; Surgutneftegaz, 54 Mt; Tyumen Oil Co(TNK), 43 Mt; Sibneft, 31.4 Mt; Tatneft, 24.66 Mt; Rosneft, 19.6 Mt; Sidanco, 18.6 Mt; and Slavneft, 18.1 Mt.

Oil exports to countries outside the CIS amounted to 154.98 Mt, up 12.4% from 2002. A total of 149.75 Mt of oil was exported through the Transneft system.

### **Natural gas**

Russia remains one of the world's biggest natural gas producers. Russia's commercial natural gas reserves are estimated to be 48,900 billion m<sup>3</sup> (bcm), or approximately 35% of the world's entire reserves.

Gas production in Russia in 2003 amounted to 616.45 bcm up 3.6% from 2002. Gazprom production in 2003 amounted to 540.17 bcm, up 3.1% year-on-year.

Vertically-integrated oil companies produced 40.43 bcm of gas in 2003. Of these, the main producers were Surgutneftegaz (13.88 bcm), and Rosneft (7 bcm). Other oil and gas production companies produced 35.67 bcm of gas in 2003, compared with 36.48 bcm in 2002.

Gazprom put into operation a second UKPG-2 production facility at the Zapolyarnoye deposit, with an annual capacity of 16.25 bcm, a production facility at the Urengoi deposit (with a designed capacity of 5 bcm/y) and a production facility at the Vyingayakhinsky deposit (20 bcm/y). Gazprom also built a UKPG-3S production facility at the Zapolyarnoye deposit, with an annual capacity of 16.25 bcm. The UKPG-3S facility will reach its design capacity of 32.5 bcm/y in the third quarter of 2004. Gazprom launched a UKPG-11V gas production facility at the Yen-Yakhinsky deposit. The facility will reach its design capacity of 5 bcm/y and 1.75 Mt/y of condensate in 2006.

This year, Rusia Petroleum plans to almost double spending to US\$30 million at the big Kovykta gas condensate field, where it holds the operating licence. Kovykta contains 2,000 bcm of C1+C2 gas. Capital expenditures in the project are estimated at US\$676 million from 2004 to 2034, with the bulk of the investment (US\$480 million) falling in the period 2004-2006. Rusia Petroleum's biggest shareholders are BP with 33.39%, Russia's TNK with 29.03%, Interros with 25.82% and the Irkutsk region with 10.78%.

### **Others**

Russia's Natural Resources Ministry has drafted a programme to look for new uranium deposits, primarily in northwestern European Russia and eastern Siberia, for deposits that can be developed in the traditional way. It will also search sandstone areas, mainly in central Russia, western Siberia and eastern Siberia, for deposits amenable to in situ leaching. The total volume of discovered natural uranium in the country is estimated at 160,000 t. Of the total volume of natural uranium reserves, about 150,000 t are in a deposit owned by the Priargunskoye Mining JSO and Chemical Production Association. The remaining 10,000 t are in the deposit of the Dalur enterprise in the Kurgan region. Each year, Russia adds about 3,000 t of uranium to its resource base.

Primorsky GOK, Russia's biggest tungsten mine, increased tungsten concentrate output by 16.3% to 5,000 t in 2003. However, its production of copper in concentrate fell by 7.85% to 4,700 t and ore production decreased by 10.7% to 276,800 t. By value Primorsky raised output by 15.6% in 2003.

The company operates the Vostok-2 tungsten mine, discovered in 1961. Management controls more than 70% of the shares.

Basic Element (BasEl) plans to invest Rb5 billion (US\$167 million) in 2003-2005 to develop the Chineiskoye polymetallic deposit in the Chita region. Chineiskoye is 38 km southeast of the Novaya Chara rail station on the Baikal-Amur railway. In 2003, BasEl acquired a controlling stake in Zabaikalstalinvest, which owns the licence to Chineiskoye. At the beginning of 2005, the company plans to launch the first phase of a mining and milling complex at the deposit for 1 Mt/y of iron ore, and the first phase of a copper mine processing 200,000 t/y of ore. These facilities are to be expanded to 10 Mt/y and 1 Mt/y respectively, by 2007. In addition, Chineiskoye has a proven reserve of 1,500 Mt of vanadium titanium-magnetite ore, and a probable reserve of more than 30,000 Mt. At full capacity, the mine could produce 3.26 Mt/y of iron, 600,000 t/y of titanium concentrates (more than 10% of global output), 23,700 t/y of copper, 396 kg/y of gold, 6.5 t/y of silver, 768 kg/y of platinum and 985 kg/y of palladium. BasEl owns more than 50% of Zabaikalstalinvest, and the Railways Ministry holds 25%.

Research and design institute Rostovgipromash has begun drafting a feasibility study for investment in the Tyrnauzsky Mining and Beneficiation Combine (TGOK), which mines and mills tungsten-molybdenum ores in the Russian internal republic of Kabardino-Balkaria. Investment is needed because there is little potential left for open-pit mining of tungsten-molybdenum ore. Owing to ore depletion, rising electricity prices, falling state orders and slumping profits, TGOK was virtually shut down in 2002. However, proven reserves at the Tyrnauzskoye deposit are sufficient to last 20 years, and pure metal content in new orebodies is considerably higher than in the those already mined.

Tables next page.

**Table 1: Russia's gold production (kg)**

	<b>2002</b>	<b>2003</b>	<b>Growth kg</b>	<b>Growth %</b>
Mine output	158,645	159,915	+ 1,270	100.8%
By-product	9,766	10,153	+ 387	104.0%
Secondary	2,546	6,935	+ 4,289	268.5%
<b>Total</b>	<b>170,957</b>	<b>176,903</b>	<b>+ 5,946</b>	<b>103.5%</b>

Source: The Union of Gold Producers.

**Table 2: Selected mineral production in Russia ('000 t except where specified)**

<b>Commodity</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Alumina	2,465	2,687	2,889	3,091	3,178	3,273
Bauxite	4,092	4,513	5,000	4,805	4,579	4,881
Aluminium	3,010	3,149	3,247	3,302	3,352	3,479
Copper	656	737	824	871	844	817
Gold (t)	114	126	143	155	171	177
Iron ore	72,300	81,500	86,600	82,499	85,960	91,800
Pig iron	34,800	40,100	44,600	44,980	46,270	48,370
Steel	43,800	51,500	59,100	58,970	59,800	62,710
Lead	33	55	52	60	54	54
Tin	4	4	5	5	5	4
Zinc	196	231	241	249	256,5	253
Coal	246,600	249,516	258,000	269,000	256,000	275,000
Natural gas (million m <sup>3</sup> )	591,400	576,400	584,200	550,830	595,300	616,450
Petroleum (crude)	293,933	304,994	323,300	336,990	379,000	421,000 <sup>r</sup>

Source: the State Statistics Committee, the Ministry of Trade and Industry, Interfax-CNA's estimates.

r: rounded.