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**February 2005**

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## Russia

*Russia is important to world energy markets because it holds the world's largest natural gas reserves, the second largest coal reserves, and the eighth largest oil reserves. Russia is also the world's largest exporter of natural gas, the second largest oil exporter, and the third largest energy consumer.*

*Note: Information contained in this report is the best available as of February 2005 and is subject to change.*



### GENERAL BACKGROUND

In 2004, Russia's real gross domestic product (GDP) grew by approximately 7.1%, surpassing average growth rates in all other G8 countries, and marking the country's sixth consecutive year of economic expansion. Russia's economic growth over the last five years has been fueled primarily by energy exports, particularly given the boom in Russian oil production and relatively high world oil prices during the period.

This type of growth has made the Russian economy dangerously dependent on oil and natural gas exports, and especially vulnerable to fluctuations in world oil prices. Typically, a \$1 per barrel change in oil prices will result in a \$1.4 billion change in Russian revenues in the same direction—a fact that underlines the influence of oil on Russia's fiscal position and its vulnerability to oil market volatility. The government's stabilization fund, a rainy-day storage facility for windfall oil receipts that came into effect on January 1, 2004, can help to offset oil market volatility. But as the fund grows (it is currently worth approximately \$16.7 billion), using it to solve social problems or to buy other assets in the Commonwealth of Independent States (CIS) may become more likely. Although estimates vary widely, the [World Bank](#) has suggested that Russia's oil and gas sector may have accounted for up to 25% of GDP in 2003 while employing less than 1% of the population. Raw materials, such as oil, natural gas, and metals, dominate exports and account for over two-thirds of all Russian export revenues.

The Russian government has made decoupling economic growth from commodity exports a priority, and is attempting to restructure and liberalize its energy sector. Nationalizing parts of the energy sector (see discussion on [Yukos](#) below) has come at the expense of Russian oil and natural gas producers, who are seeking to grow in a more liberalized marketplace, as well as Russia's external trading partners, who are pressuring the country to synchronize its policies with those in Western Europe and North America. Key to these efforts will be breaking up the monopolies that control the natural gas and electricity industries.

In the meantime, Kremlin policy makers continue to exhibit an inclination to advance the state's influence in the energy sector, not to reduce it. Taxes on oil exports have been raised significantly (until a 17% reduction effective February 2005); state-owned export facilities have grown at breakneck pace, while private projects have progressed more slowly or faltered (see [Oil Exports](#)); Rosneft, the state-owned oil company has obtained

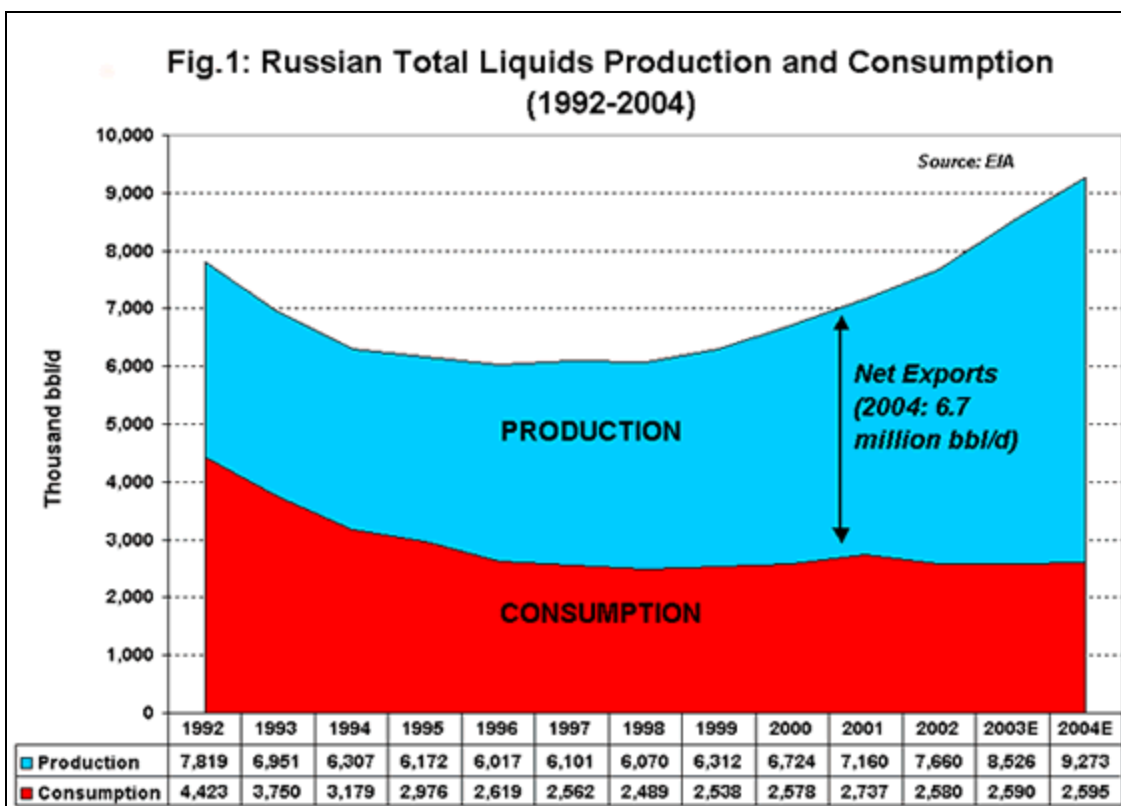
the 1-million-bbl/d Yukos unit of Yuganskneftegaz; and leading industry figures have come under criminal investigation by Russia's Procuracy General (see [Oil Industry Structure](#)). However, Putin has promised in [press interviews](#) and in conversations with foreign heads of state that the past year (2004) would show oil export growth "from all Russian companies." At the time of publication, estimates of oil exports were still being finalized. Putin has also maintained that Russia has an interest in maintaining fair market value for the commodity and would be willing to work with OPEC to obtain a price level conducive to domestic economic growth.

## OIL

According to the *Oil and Gas Journal*, Russia has proven oil reserves of 60 billion barrels, most of which are located in Western Siberia, between the Ural Mountains and the Central Siberian Plateau. Approximately 14 billion barrels exist on [Sakhalin Island](#) in the far eastern region of the country, just north of Japan. In the 1980s, the Western Siberia region, also known as the "Russian Core," made the Soviet Union a major world oil producer, allowing for peak production of 12.5 million barrels per day in 1988 (most of which came from Russia). Following the fall of the Soviet Union in 1991, oil production fell precipitously, reaching a low of roughly 6 million bbl/d, or around one-half of the Soviet-era peak (see Fig. 1, [data](#)). Several factors are thought to have caused the decline, including the depletion of the country's largest fields due to state-mandated production surges and the collapse of the Soviet central planning system.

A turnaround in Russian oil output, which many analysts have attributed to the privatization of the industry following the collapse of the Soviet Union, began in 1999. The privatization clarified incentives and increased less expensive production. Higher world oil prices ([oil prices tripled between January 1999 and September 2000](#)), the usage of technology that was standard practice in the West, and the rejuvenation of old oil fields also helped raise production levels. Others attribute the increase in part to after-effects of the 1998 financial crisis and subsequent devaluation of the ruble.

The rebound in Russian oil production has continued since 1999, resulting in 2004 total liquids production of roughly 9.27 million bbl/d (8.8 million bbl/d of which was crude oil)--a 10% increase over 2003 and almost 40% higher than 1998. Accordingly, in 2003, Russia was the world's second largest producer of crude oil, behind only Saudi Arabia. From March to May 2004, Russian crude oil output actually exceeded that of Saudi Arabia. Both the Russian government and outside observers agree that production should continue to grow, at least in the short term. However, [recent \(October-December 2004\) monthly oil statistics](#) show crude oil production growth decreasing relative to the levels before September 2004. Oil companies in Russia are applying new upstream techniques to older oilfields and are therefore improving current production. In the



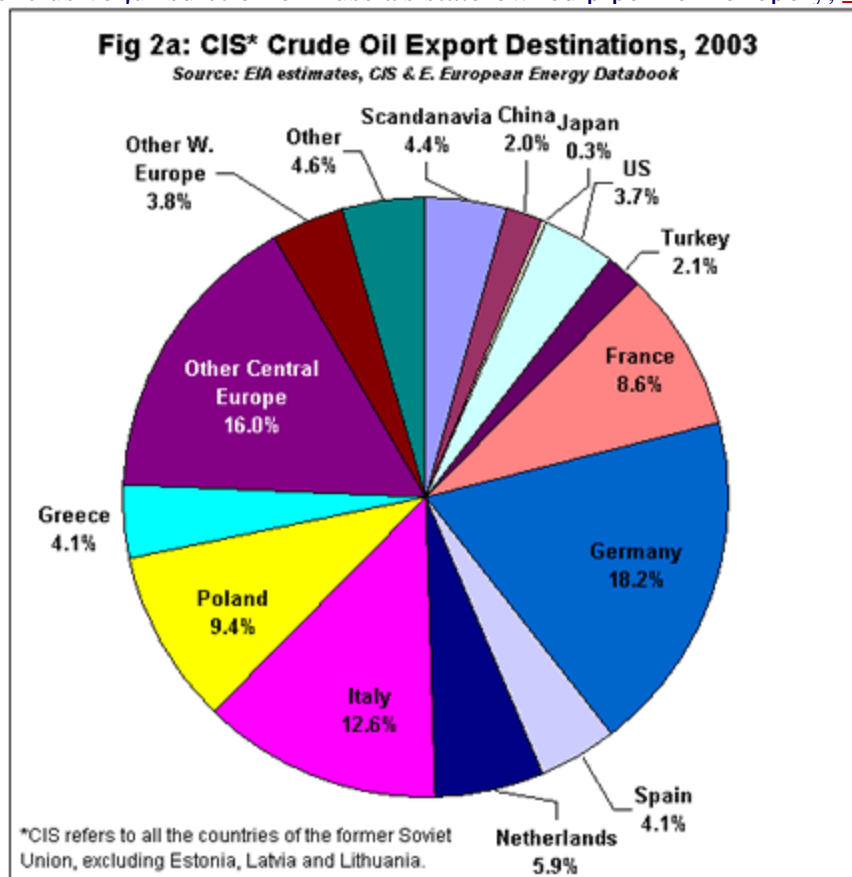
past, private firms have led much of the upstream development in Russia; but as the state nationalizes these firms, sustained improvements to exploration and development become less certain. Press reports from January 2005 are already attributing late 2004 production decreases to the Yukos "affair". Also, a recent report from the Siberian branch of the Russian Academy of Sciences says that nearly 60% of all proven reserves in Western Siberia are near depletion. For more on Yukos please see the [Industry Structure](#) section below. For energy-related forecasts by the Energy Information Administration, see the [International Energy Outlook](#).

### Russia's Oil Balance

Over 70% of Russian crude oil production is sent directly abroad for export, while the remaining 30% is refined locally. Approximately two-thirds of Russia's 6.7 million bbl/d of liquids exports in 2004 were sent to Belarus, Ukraine, Germany, Poland, and other destinations in Central and Eastern Europe (including Hungary, Slovakia, and the Czech Republic). These destinations are all points along Russia's major export pipeline, Druzhba, and its multiple branches. The remaining one-third of crude oil exports were sent to maritime ports and in turn sold on world markets. Also, because of higher world oil prices recently, almost 40% of Russia's oil exports are exported via railroad and river barge (See Fig. 2b). Most of Russia's product exports consist of [fuel oil](#) and [diesel fuel](#), which are used for heating in European countries.

### Oil Exports

Expanding Russia's capacity to export oil in order to keep pace with the country's growing production is important to both Kremlin policy-makers and Russia's oil companies. However, the two sides are sometimes at odds over how best to boost the country's export capacity. Crude oil exports via pipeline fall under the exclusive jurisdiction of Russia's state-owned pipeline monopoly, [Transneft](#). But bottlenecks in the [Transneft](#)



[system](#) make the company's export capacity incapable of meeting oil producers' export ambitions. Although Russia produces almost 7 million bbl/d of liquids for export, only about 4 million bbl/d can be transported in major trunk pipelines; the rest must be shipped by rail and river routes. Most of the 4 million bbl/d transported via alternative routes are petroleum by-products (see Fig. 2b). Some of the crude oil export capacity deficit is also overcome by exporting these petroleum products. However, all of these alternate methods of exporting oil are much more costly than shipment via pipeline and could become less viable if world oil prices fall.

The Russian government and Transneft have acknowledged the capacity problem and have taken steps towards developing new export infrastructure. At issue, however, is not only the direction and scope of enhancements to the country's export infrastructure, but also the

potential role that private firms and investors may play in these projects, presumably at the expense of state-owned Transneft.

During 2005, the Russian Energy Ministry expects crude oil exports of around 5.38-5.52 million bbl/d, an increase of up to 7.4% from Ministry estimates for 2004 of 5.14 million bbl/d. Under the Ministry's economic forecast, Russian oil exports could grow to around 5.8 million bbl/d in 2007, and up to 6.2 million bbl/d by

2015.

### [Proposed Oil Pipeline Routes and Pipeline Expansion Projects](#)

For a discussion of major proposed oil pipeline routes and expansion projects, please click [here](#).

### **Alternate Oil Export Routes**

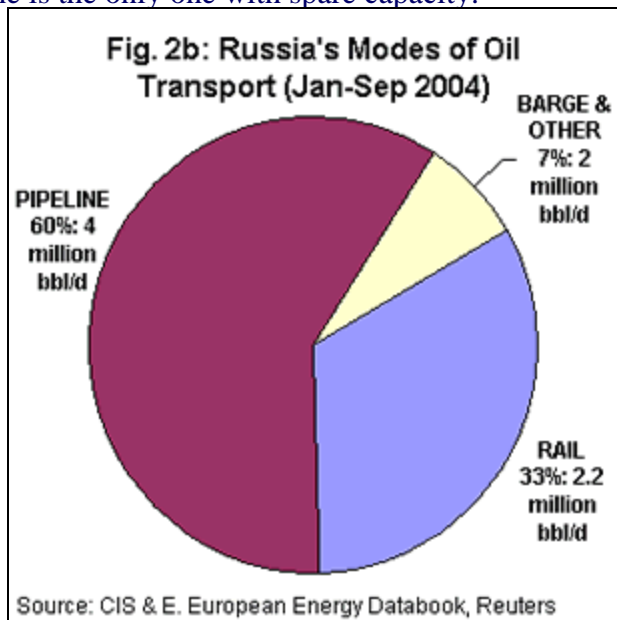
Rail and barge exports of crude oil comprise over 35% of Russian crude oil exports. But unless significant investment flows into expanding the Russian pipeline network's capacity, non-pipeline transported exports are poised to increase even more in the upcoming years. As China's growth continues, rail routes are the only way to provide Russian crude oil to East Asia. In the absence of a dedicated pipeline route, Russian crude oil is exported via rail to the northeast cities of Harbin and Daqing and to central China via Mongolia (see [Pipeline Projects Fact Sheet](#) for maps). China's Ministry of Railways expects rail exports of crude oil to China to increase from approximately 200,000 bbl/d in 2005 to 300,000 bbl/d by 2006. Outside observers worried whether the government's treatment of Yukos would affect rail exports to China since Yukos is the leading supplier of oil exports to China. However, since the auction of Yuganskneftegaz (see [Industry Structure](#)), Lukoil has taken over the role of rail supplier.

### **Oil Shipment: Black Sea**

After Russian oil flows through the various pipelines described above, some crude oil and products are shipped onward to Europe, the United States, and Asia via tanker. The bulk of Russia's oil is shipped to the Mediterranean and to Asia via tankers in the Black Sea, mostly from the port of Novorossiysk. With the opening of the BTC pipeline in 2005 and the higher export aspirations of the CPC consortium owners (see the [Caspian](#) and [Kazakhstan](#) briefs, respectively), it is now unclear how much oil will still be shipped out of the Black Sea ports. Since the economic viability of the BTC pipeline is as of yet untested, some analysts expect Novorossiysk (along with Batumi, Supsa, and Odessa) to remain at current levels (approximately 1.7 million bbl/d in 2003). Other analysts expect that if [Azerbaijan](#) does actually divert all of its oil shipments via BTC, the exports from Novorossiysk will decrease. Some news reports indicate a floating proposal that the Baku-Novorossiysk line might then be reversed, allowing for 250,000 bbl/d more crude oil exports to be sent from Russia to Baku and then along the BTC route. Also, the only area of expansion in the Russian pipeline network is near St. Petersburg, and the Baku-Novorossiysk line is the only one with spare capacity.

### **Russia's Evolving Oil and Natural Gas Industry Structure**

In 2004, several major events transformed the the oil and gas industry in Russia. First, in September 2004, [Gazprom](#) announced plans to acquire, via a share swap, the 100% state-owned oil company, Rosneft. A completed Rosneft-Gazprom merger would put the new company into competition with Lukoil, the country's largest oil producer. Also, the Russian government itself stands to gain from the merger. Previously, the government owned a 38% share in the natural gas giant; but with the acquisition of Rosneft, Russia will have a majority stake in the combined company. Russia will now have much larger control over the development of the country's natural resources. Gazprom also plans to establish an equity share in the wholesale power generating sector and in the nuclear realm though partial purchases of soon-to-be-separated wholesale power producers and by obtaining a majority stake in Russia's only nuclear technology exporter, Atomstroieksport.



The state has also demonstrated particular strength in reorganizing the Russian energy sector through its treatment of OAO Yukos and its management. On October 25, 2003, the Russian government arrested Mikhail Khodorkovsky, the CEO of Yukos, Russia's top oil producer, on charges of fraud and tax evasion. Since that

time, the Russian government has arrested numerous other shareholders and top-level executives in the company for similar reasons. The government sought to recoup the cost of some of the allegedly questionable tax schemes used by Yukos by auctioning off 76.8% of the company's prime asset, Yuganskneftegaz, in late 2004. The subsidiary, which produces approximately 1% of the world's oil supply and 11% of Russia's oil supply, was auctioned off to an unknown company called Baikal Finans Group (BFG). A week later Rosneft, the state oil company, announced it would buy BFG for \$9.35 billion (with a loan partly financed by Chinese National Petroleum Corporation), far less than the unit's fair market value.

Another merger in the Russian energy industry introduced the participation of a new major Western oil company. In September 2004, ConocoPhillips announced a \$2.0 billion strategic alliance with OAO Lukoil, under which Conoco will buy a 7.6% stake in the Russian oil company and get a share in joint projects. Through stock purchases, ConocoPhillips increased its share of the company to 10% by November 2004, enough for it to receive one seat on the 11-member board of directors of Lukoil. The deal will provide Conoco access to Russia's oil and natural gas reserves and opens a possible avenue for it to become the first Western petroleum producer to return to Iraq. Under the strategic alliance, Conoco can opt to raise its stake to 20% within two to three years, which would cost about \$3 billion at current prices.

Finally, in 2003, British Petroleum (BP) completed its merger with the Russian oil company, Tyumen Oil Company, creating a new company called TNK-BP. The deal was approved by regulatory authorities in Russia and Europe in the summer of 2003, marking one of the largest single foreign investment in Russia since the collapse of the Soviet Union. TNK-BP holds oil reserves of 4.1 billion barrels (Securities and Exchange Commission estimate, others vary) and produced 1.3 million bbl/d in 2003, making it Russia's fourth largest oil producer (behind Lukoil, Yukos, and Surgutneftegaz). The deal also includes retail outlets in Russia and Ukraine.

### **Downstream/Refining**

Russia has 41 oil refineries with a total crude oil processing capacity of 5.44 million bbl/d. However, many of the refineries are inefficient, aging, and in need of modernization. With Russian domestic demand of 2.6 million bbl/d in 2004 (preliminary estimate), refining capacity far outstrips local demand for refined products. Because Russian refined product exports have a lower average price than crude oil, the Russian government reduced export taxes during the mid 1990s to allow for greater volumes of product exports. Political pressures to maintain refinery operations and the need to pay for refinery modernization provide an incentive for Russian oil companies to continue favoring product exports. According to the draft plan for economic development during 2005-2008, the reconstruction and upgrading of refineries so that the refineries can convert a higher level of crude will be a priority for future oil refinery development. The draft foresees continued increases in the production of high quality light oil products, catalysts and raw material for the petrochemical industry.

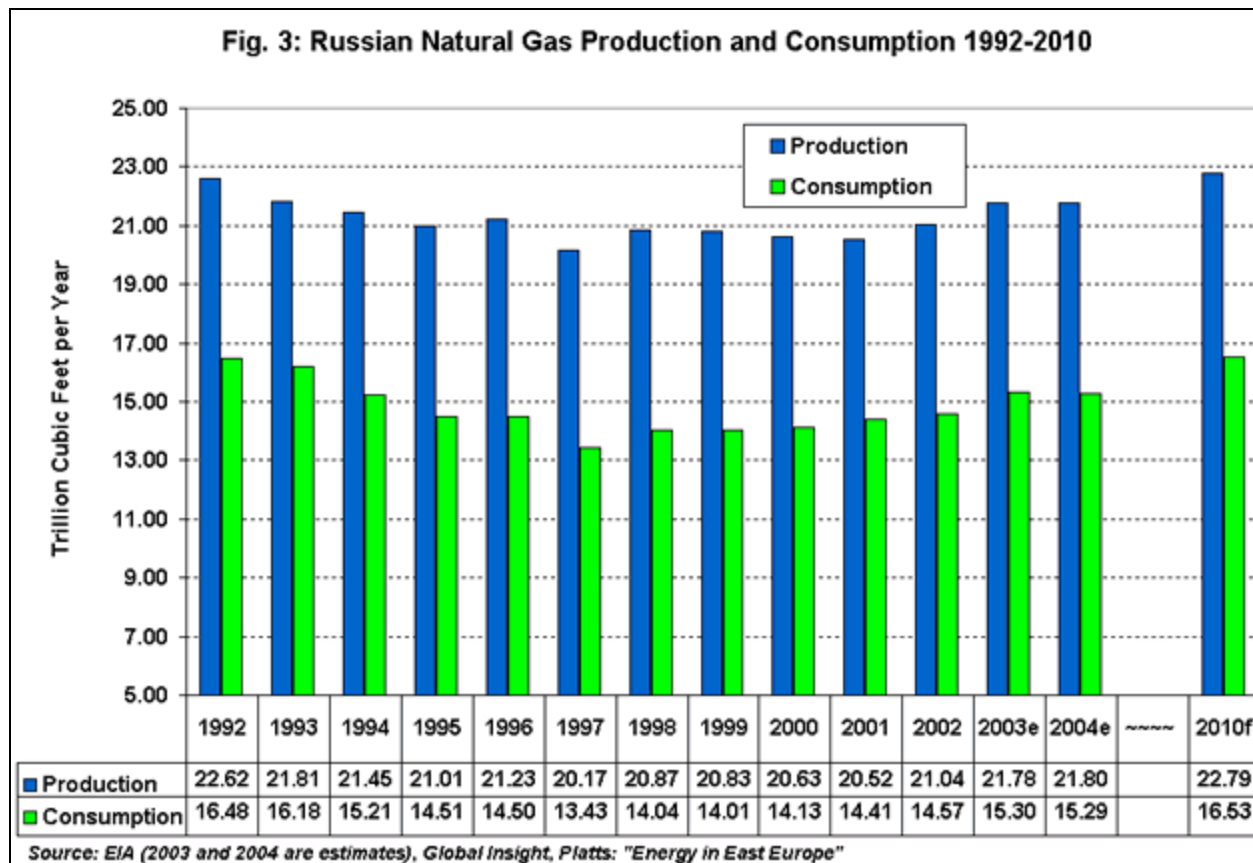
### **NATURAL GAS**

Russia holds the world's largest natural gas reserves, with 1,680 trillion cubic feet (Tcf)--more than twice the reserves in the next largest country, Iran. Accordingly, in 2004 Russia was the world's largest natural gas producer (22.4 Tcf/y), as well as the world's largest exporter (7.1 Tcf/y). However, Russia's natural gas industry has not been as successful as its oil industry, with both natural gas production and consumption remaining relatively flat since independence (see Fig. 3). Moreover, Russia's energy strategy, released in May 2003, calls for only modest natural gas production growth (about 1.3%) by 2010, even under its most optimistic scenario (see Fig. 3, [data](#)). Growth of Russia's natural gas sector has been stunted primarily due to ageing fields, state regulation, Gazprom's monopolistic control over the industry, and insufficient export pipelines. Three major fields (called the 'Big Three') in Western Siberia--Urengoy, Yamburg, and Medvezh'ye comprise more than 70% of Gazprom's total natural gas production, but these fields are now in decline; and the government and Gazprom both project steep declines in natural gas output between 2004 and 2020.

### **Natural Gas Industry Structure**

Gazprom, Russia's state-run natural gas monopoly, holds nearly one-third of the world's natural gas reserves, produces nearly 90% of Russia's natural gas, and operates the country's natural gas pipeline network.

Gazprom is also Russia's largest earner of hard currency, and the company's tax payments account for around 25% of federal tax revenues.



But despite its enormous size and significance, Gazprom is seriously encumbered by domestic regulation. By law, Gazprom must supply the natural gas used to heat and power Russia's vast domestic market at government-regulated prices (approximately \$28 per thousand cubic meters), regardless of

profitability. Accordingly, roughly two-thirds of the company's revenue comes from its export sales to Europe, where natural gas is sold for around \$125-\$135 per thousand cubic meters. Because exported Russian natural gas accounts for approximately 25% of Europe's demand for natural gas, Gazprom is also one of Moscow's main foreign policy tools (see Table 1).

As Gazprom's trade relationship with European consumers grows, contentious issues have arisen. European trade representatives denounced Gazprom's monopolistic market position and two-tiered pricing system and linked the pricing issue to Russia's accession to the World Trade Organization (WTO) in response. Russia agreed to grant independent natural gas producers access to Gazprom's pipelines. Also, in response to calls for fair pricing, the Russian government increased prices to industrial consumers (from \$0.79/million cubic feet to \$1.61/million cubic feet), yet this price level is still far less than half the prices charged at the German and Ukrainian borders. Russia hopes to complete negotiations on WTO accession during 2005.

### Export Markets

Historically, the majority of Russia's natural gas exports were sent to customers in Eastern Europe. But since the mid 1980's, Russia began looking to diversify its export options. Russia continues to export significant amounts of natural gas to customers in the Commonwealth of Independent States (CIS), but Gazprom (through its subsidiary Gazexport) has shifted much of its natural gas exports to serve the rising demand in countries of the EU, as well as Turkey, Japan, and other Asian countries. Natural gas exports rose during 2004 from previous years, but the Ministry of Energy expects natural gas exports in 2005 to grow at a slower rate. Last year, Russia exported approximately 7.1 Tcf/y of natural gas, and Russian Energy Ministry data released at the beginning of 2005 forecasted exports of 7.2 Tcf/y for 2005.

However, if Gazprom is to fulfill this long-term aim of increasing its European sales, it will have to boost its production, as well as secure more reliable export routes to the region. Several proposed new export pipelines

would serve European markets if constructed.

### **Proposed Natural Gas Pipeline Routes and Natural Gas Pipeline Expansion Projects**

For a discussion of major proposed natural gas pipeline routes and expansion projects, please click [here](#).

### **LNG Options**

As production from the 'Big Three' Russian natural gas fields decreases in upcoming years, Gazprom and Russia have fielded proposals for LNG export facilities at Murmansk, Yamal, and Shtokman near the Barents Sea. These export terminals could provide U.S. East Coast LNG terminals with natural gas in upcoming years. The success of Norway's nearby Snøvit project, already further along the way to completion, will be a good barometer for the economic success of other Barents Sea LNG terminals. To serve the Western United States and Asia, the project developers of [Sakhalin II](#) have begun construction on the south end of Sakhalin island.

### **China and South Korea**

Rusiya Petroleum (a TNK-BP-led consortium), South Korea's state-owned Korea Gas Corporation (Kogas), and the Chinese National Petroleum Company (CNPC) have announced plans to construct a pipeline connecting Russia's Kovykta field to China's northeastern provinces and across the Yellow Sea to South Korea. The plan calls for a 1.2 Bcf-per-year pipeline that would deliver roughly two-thirds of its natural gas annually to China, while delivering the rest to South Korea and smaller quantities to the domestic market en route. The partners expect that the pipeline could come online in 2008.

Rank	Country	Imports (bcf/year)	Pct of Domestic NG Consumption
1	Germany	1045.9	39%
2	Italy	756.2	28%
3	Turkey	431.1	60%
4	France	402.8	22%
5	Hungary	364.0	68%
6	Czech Republic	275.6	79%
7	Slovakia*	275.6	103%
8	Poland	258.0	62%
9	Austria	190.8	65%
10	Bulgaria	190.8	97%

\*Country also re-exports substantial amounts of natural gas  
 \*\*Does not include exports through Ukraine and Belarus  
 Source: EIA, BP, CIS and E. European Energy Databook, 2004

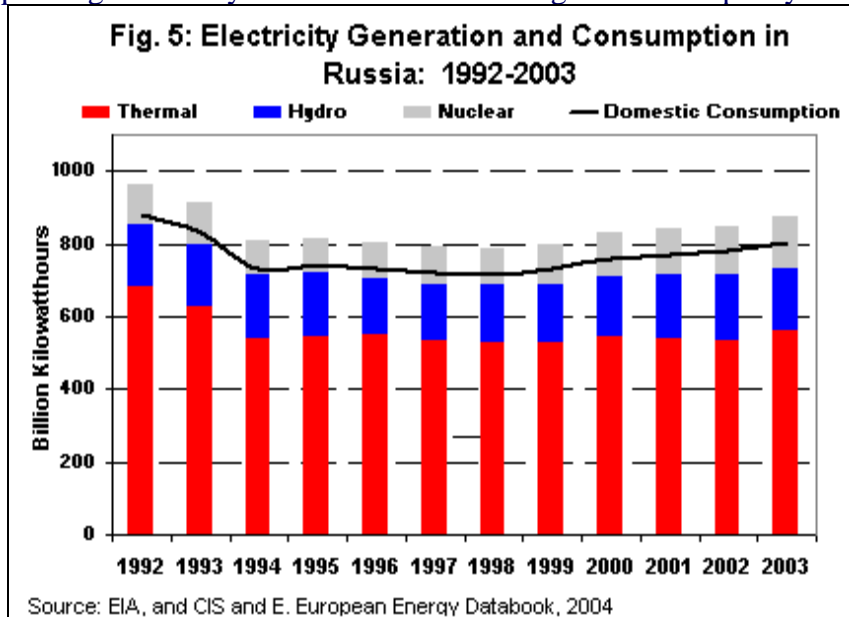
### **COAL**

With 173 billion short tons, Russia holds the world's second largest recoverable coal reserves, behind only the [United States](#), which holds roughly 274 billion short tons. However, years of poor management during the Soviet era, and a sharp decline in demand for coal during the early 1990s, significantly undermined the Russian coal sector. In 2004, Russian energy ministry sources estimate total coal production was 308.6 million short tons, less than one-third of U.S. production.

Between 1996 and 2001, Russia worked with the World Bank to restructure the country's coal industry. As a result, the state monopoly, formally known as RosUgol, has been dissolved, and roughly 77% of domestic coal production comes from independent producers. Russian coal production began a three-year upswing in 1999, with the Russian energy ministry estimates growth of 1.2% in 2004 and 1.8% growth in 2005 year-over-year. According to the government's energy strategy, Russia should produce between 441 and 496 million short tons by 2020. The government has high hopes for the future of the coal industry. Exports of coal and coke from CIS countries to non-CIS countries rose a staggering 60% between 2002 and 2003, and recent articles in the trade press expect rising coal demand (especially in Asia) to continue. However, some problems may hinder the [industry's development potential](#). Russia's agreement to the [Kyoto Protocol](#) may lower utility sector demand for coal. In a recent BBC interview, the governor of the Kemerovo Region, which is responsible for over half of the country's coal production, voiced concerns over his region's ability to sustain coal production [growth](#). He noted his region had already seen almost 200 rivers ruined, and those that were left are smaller than in previous decades. These environmental problems may hinder Russia's desire to keep increasing coal production.

### **ELECTRICITY Generation Sector**

Russia's power sector includes over 440 thermal and hydropower plants (approximately 77 of which are coal-fired) plus 31 nuclear reactors. A few generators in the far-eastern part of the country are not connected to the power grid. The system has a total electric generation capacity of 205.6 gigawatts (GW), and in 2003



generated approximately 850.6 billion kilowatt hours (bkwh) of electric power (see Fig. 5). Since the collapse of the Soviet Union, electricity generation showed both a dramatic decline, (down 18% between 1992 and 1999), followed by a gradual recovery (up 8% between 1999 and 2002). Similar to patterns in oil, natural gas, and coal, the economic slowdown which followed the Soviet Union's collapse also stunted electricity generation. Economic recovery contributed to an increase in total electricity consumption from 715 Bkwh in 1998, to roughly 780 Bkwh in 2002.

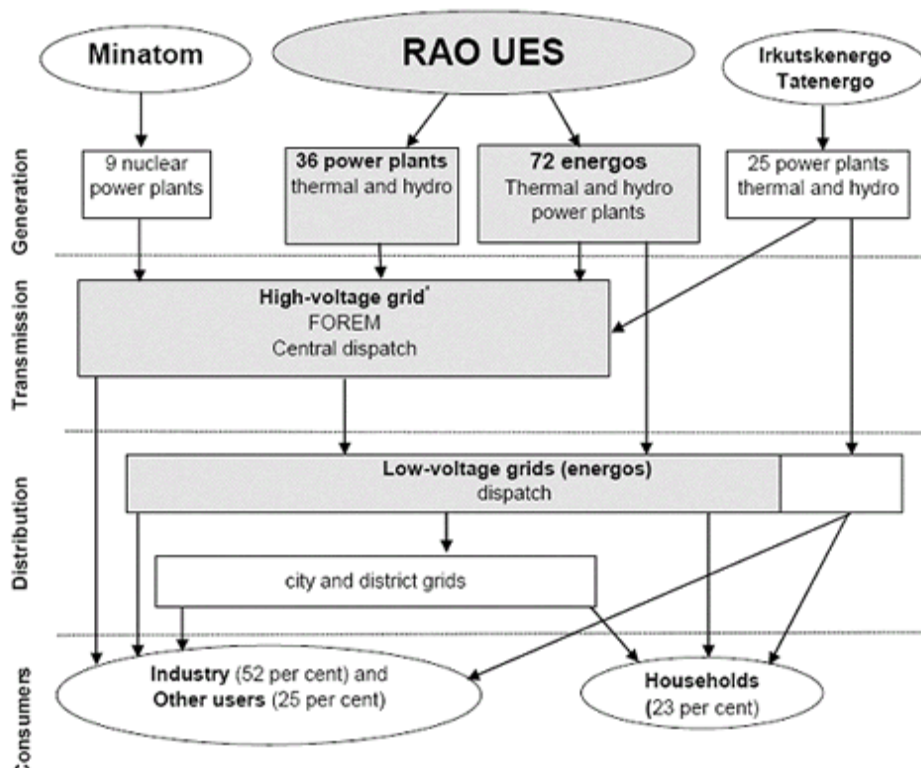
Thermal power (oil, natural gas, and coal-fired) accounts for roughly 63% of Russia's

electricity generation, followed by hydropower (21%) and nuclear (16%), (see Fig. 5, [data](#)). The Russian government has stated that it intends to expand the role of nuclear and hydropower generation in the future to allow for greater export of fossil fuels. Russia has an installed nuclear capacity of 21.2 million kilowatts, distributed across 31 operational nuclear reactors at 10 locations, all west of the Ural Mountains. However, Russia's nuclear power facilities are aging (albeit at approximately the same rate as other countries), and the nuclear power industry has been hard hit by Russia's transition to a market economy. Surprisingly, 50% of the country's 31 nuclear reactors use the RBMK design employed in Ukraine's ill-fated Chernobyl plant. The working life of a reactor is considered to be 30 years: nine of Russia's plants are between 26 and 30 years old, and six are between 21 and 25 years old. By 2010, Russia plans to construct five new units at existing facilities throughout the country.

The Russian Ministry of Atomic Energy predicts that by 2020 nuclear generation could reach 300 bkwh per year, more than double the 2003 level.

Besides nuclear generation, the Russian government has also made hydroelectric generation a priority, particularly in the country's Far East, where electricity supply can be problematic. In June 2003, a representative from the country's largest generation owner, [Unified Energy System of Russia \(UES\)](#), told reporters that the company plans to invest \$14 billion in the

### Russian Electricity Sector Structure, 2002





development of Russia's hydroelectric sector, particularly in Siberia and the Far East.

### Transmission and Distribution Sector

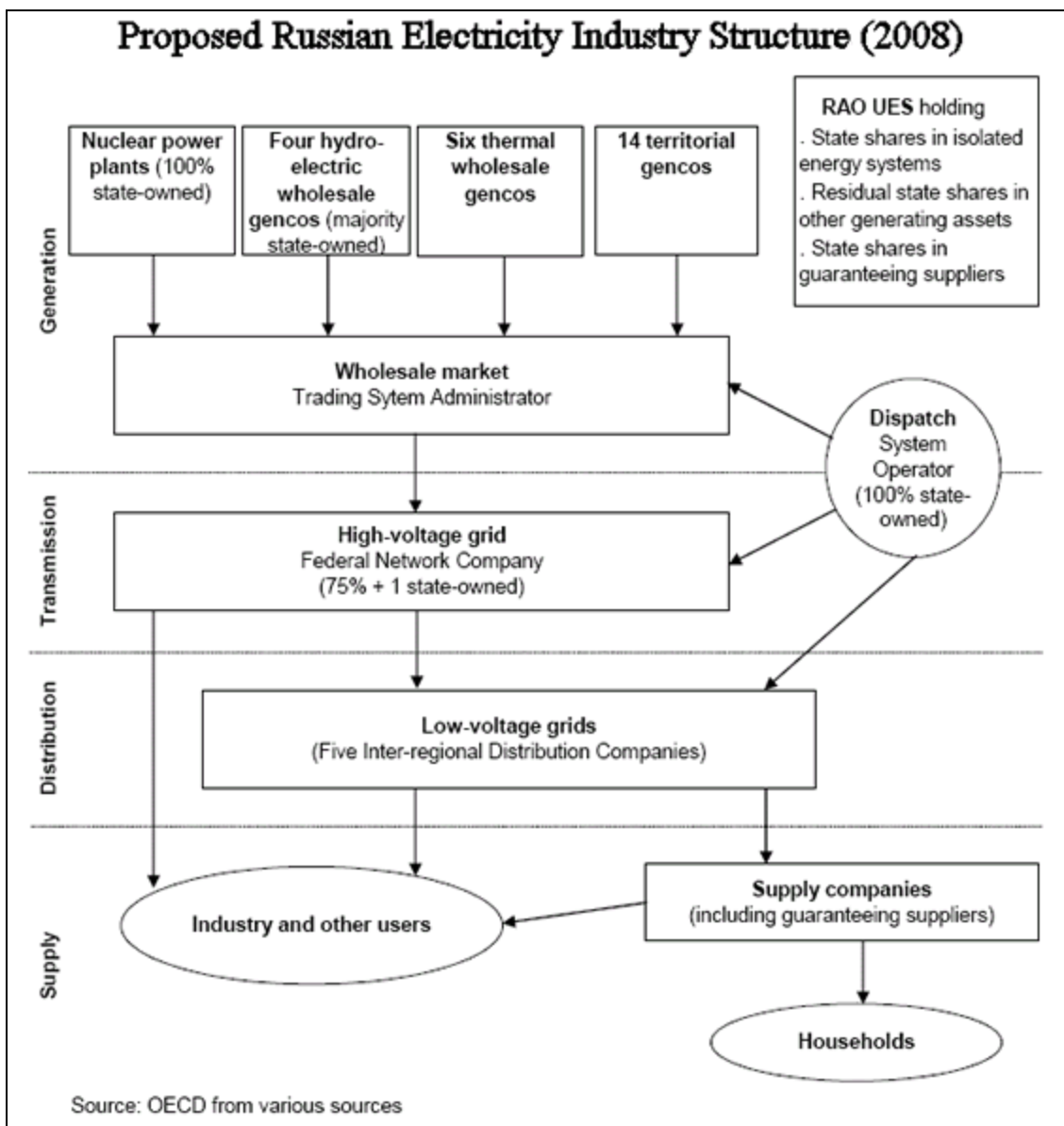
There are seven separate regional power systems in the Russian electricity sector: Northwest, Center, Middle Volga, North Caucasus, Urals, Siberia, and Far East. The Far East region is the only one not connected to an integrated power system. UES, which is 52% owned by the Russian government (Gazprom now has a 10% stake), controls most of the transmission and distribution in Russia. UES owns 96% of the transmission and distribution system, the central dispatch unit, and the federal wholesale electricity market (FOREM). The grid comprises almost 2 million miles of power lines, 93,000 miles of which are high-voltage cables over 220 kilovolts (Kv).

### Privatization and Electricity Market Reform

Currently, wholesale competition and choice of electricity supplier are nonexistent for consumers in Russia, but this will change under the new plan when implementation begins in 2006 at the earliest. In December 2004 Viktor Khristenko, the energy minister, announced a delay of at least 12 to 18 months in the first sale of electricity generation assets, a key part of power-sector reform plans, increasing concerns among foreign investors that the country's energy reforms are not progressing as originally planned. According to Khristenko, preparing the assets for sale could take until the middle of 2006.

As part of the reform begun in March 2004, Russian President Vladimir Putin signed six bills into law that aim to substantially reform the industry. Under the new laws, tariff rates on the domestic market are to be made more universal instead of geographically-specific by July 1, 2005, and UES is to be liquidated beginning in 2006. UES's generation and distribution facilities are to be privatized, while the country's transmission grid is to remain under state control.

The main object of the Russian electricity reform package is to create a generating sector divided into multiple wholesale electricity companies (commonly called



"OGKs"), which participate in a new competitive wholesale market. Russia officially launched a partial wholesale market, which is referred to as the "5-15" model, in November 2003. The market, so-named for Russia's pledge to deregulate 5-15% of the country's electricity sector, serves as a trading center mostly for UES regional entities. The creation of 10 OGKs, each of which will own portions of the Russian generation sector, is the foundation for the sector's privatization. Since the Russian government has not decided on a privatization strategy for the OGKs, this pushed the privatization timetable into 2005-2006. Some of these wholesale generation companies have been auctioned off, even though Gazprom is the company buying the assets. To date, Gazprom has already bought a 10.3% share in UES and a 25% share in Mosenergo (another generation company).

Under the new plan the distribution sector will stay divided into regional monopolies. The new regional distribution companies will function as guaranteed suppliers to all customers. Also, bilateral contracts between generators and customer are and will continue to be mandatory at fixed prices set by the government. (See 'Proposed Russian Electricity Structure (2008)', below).

### **Electricity Exports**

Russia exports significant quantities of electricity to the countries of the former Soviet Union, as well as to China, Poland, Turkey and Finland. UES also has plans to export electricity to Iran and possibly Afghanistan and Pakistan from two hydroelectric stations it is currently building in Tajikistan. There are currently two efforts underway to integrate the Russian and Western European electricity grids. UES is participating in the Baltrel program, designed to create an energy ring of power companies in the Baltic states. Also, the Union for the Coordination of Transmission of Electricity (UCTE), of which 20 European countries are members, has entered into discussions with Russian colleagues over the technological and operational aspects of amalgamating their systems. In October 2003, officials representing Russia and the European Union agreed to develop plans for the full integration of their respective power grids by 2007.

### **ENVIRONMENT**

After years of neglect under the Soviet Union, the [environment](#) has become a significant issue in Russia today. Soviet policies that encouraged rapid industrialization and development left a legacy of [air pollution](#) and [nuclear waste](#) with which Russia now is struggling to contend. The country's energy and carbon intensities remain high and have only decreased marginally since the Soviet Union collapsed. In addition, despite the objections of nascent environmental groups, the post-Soviet Russian government has passed legislation to facilitate the permanent storage of other countries' nuclear waste on Russian territory. Although environmental awareness in Russia is rising, the cost of remediating the country's environmental hot spots is high, and the Ministry of Natural Resources has a limited budget. As a result, cleanup has been slow.

In November 2004, Russia ratified the the [Kyoto protocol](#) on climate change. The Protocol now enters into force since it has met the threshold of being ratified by at least 55 countries that account for at least 55 percent of 1990's developed country greenhouse gas (GHG) emissions. The Protocol's targets become legally binding commitments for ratifying countries. Since the fall of the Soviet Union, Russia's GHG emissions have fallen by about a third. Consequently, Russia should not have difficulty meeting its Kyoto target and could earn billions of dollars by selling back the difference between its emissions targets (set in 1990) and its actual emissions.

### **COUNTRY OVERVIEW**

**President:** Vladimir Vladimirovich Putin (acting president since December 31, 1999, president since May 7, 2000); re-elected March 2004

**Prime Minister:** Mikhail Fradkov (since March 2004)

**Independence:** August 24, 1991 (from Soviet Union).

**Population (12/04E):** 142.4 million

**Location:** Eurasia

**Size:** 6,592,850 square miles, slightly more than 1.8 times the size of the United States

**Major Cities:** Moscow, St. Petersburg, Yekaterinburg, Irkutsk, Murmansk, Yakutsk, Vladivostok

**Languages:** Russian, others

**Religions:** Russian Orthodox, Muslim, other

## ECONOMIC OVERVIEW

**Minister of Economic Development and Trade:** German Oskarovich Gref

**Minister of Finance:** Aleksey Leonidovich Kudrin

**Currency:** Ruble

**Market Exchange Rate (1/5/04):** \$1 = 27.8 rubles

**Nominal Gross Domestic Product (GDP) (2004E):** \$560.1 billion **(2005F):** \$649.4 billion

**Real GDP Growth Rate (2004E):** 7.0%; **(2005F):** 5.7%

**Inflation Rate (Change in Consumer Prices, 2004E):** 10.8% **(2005F):** 10.2%

**Unemployment Rate (2004E):** 5.8% **(2005F):** 5.5 % (ILO)

**Current Account Surplus (2004E):** \$48.9 billion **(2005F):** \$43.4 billion

**Major Trading Partners (2003):** Germany, Ukraine, U.S., Belarus, Italy, Netherlands, Kazakhstan

**Merchandise Exports (2004E):** \$181.8 billion; **(2005F):** \$191.3 billion

**Merchandise Imports (2004E):** \$94.1 billion; **(2005F):** \$109.5 billion

**Merchandise Trade Balance (2004E):** \$88 billion; **(2005F):** \$82 billion

**Major Exports:** Petroleum and petroleum products, natural gas, wood and wood products, metals, chemicals, and a wide variety of civilian and military manufactures

**Major Imports:** Machinery and equipment, consumer goods, medicines, meat, grain, sugar, semifinished metal products

## ENERGY OVERVIEW

**Minister of Industry and Energy:** Viktor Borisovich Khristenko

**Proven Oil Reserves (1/1/05E):** 60 billion barrels

**Oil Production (2004E):** 9.3 million bb/d (of which 8.8 million bbl/d was crude oil)

**Oil Consumption (2004E):** 2.6 million bbl/d

**Net Oil Exports (2004E):** 6.7 million bbl/d

**Major Oil Customers:** Europe, Commonwealth of Independent States

**Crude Refining Capacity (12/04E):** 5.44 million bbl/d

**Proven Natural Gas Reserves (1/1/05E):** 1,680 trillion cubic feet (Tcf)

**Natural Gas Production (2004E, Russian Energy Ministry):** 22.4 Tcf

**Natural Gas Consumption (2004E):** 15.3 Tcf

**Net Natural Gas Exports (2004E):** 6.5 Tcf

**Coal Reserves (1/1/04E):** 173 billion short tons

**Coal Production (2003E, EIA):** 294.1 million short tons (Mmst) **(2004E, Russian Energy Ministry):** 308.6 Mmst

**Coal Consumption (2003E):** 254.8 Mmst

**Electric Installed Capacity (2004E):** 208 gigawatts (68% thermal, 22% hydro, 10% nuclear)

**Electricity Generation (2003E):** 850.6 billion kilowatt-hours (Bkwh), **(2004E)** 915.0 Bkwh

**Electricity Consumption (2003E):** 780.0 Bkwh, **(2004E)** 860.0 Bkwh

**Net Electricity Exports (2004E):** 70.6 Bkwh, **(2004E)** 55.0 Bkwh

## ENVIRONMENTAL OVERVIEW

**Minister of Natural Resources:** Yuriy Trutnev

**Total Energy Consumption (2002E):** 27.5 quadrillion Btu\* (6.6% of world total energy consumption)

**Energy-Related Carbon Dioxide Emissions (2001E):** 1,522 million metric tons (6% of world carbon dioxide emissions)

**Per Capita Energy Consumption (2002E):** 191.1 million Btu (vs. U.S. value of 339.1 million Btu)

**Per Capita Carbon Dioxide Emissions (2002E):** 10.57 metric tons (vs. U.S. value of 19.97 metric tons of carbon dioxide)

**Energy Intensity (2002E):** 72,162 Btu/\$1995 (PPP), vs U.S. value of 10,575 Btu/\$1995 (PPP)\*\*

**Carbon Dioxide Intensity (2002E):** 3.99 metric tons of carbon dioxide/thousand \$1995 vs U.S. value of 0.62

metric tons/thousand \$1995\*\*

**Fuel Share of Energy Consumption (2002E):** Natural Gas (53%), Coal (18%), Oil (15%)

**Fuel Share of Carbon Dioxide Emissions (2002E):** Natural Gas (51%), Coal (26%), Oil (23%)

**Status in Climate Change Negotiations:** Annex I country under the United Nations Framework Convention on Climate Change (ratified December 28th, 1994). Under the Kyoto Protocol (signed on March 11th, 1999, ratified by upper and lower houses of Parliament and President Putin in November 2004), Russia has agreed to stabilize greenhouse gases at 1990 levels by the 2008-2012 commitment period.

**Major Environmental Issues:** air pollution from heavy industry, emissions of coal-fired electric plants, and transportation in major cities; industrial, municipal, and agricultural pollution of inland waterways and sea coasts; deforestation; soil erosion; soil contamination from improper application of agricultural chemicals; scattered areas of sometimes intense radioactive contamination; ground water contamination from toxic waste.

**Major International Environmental Agreements:** A party to Conventions on Air Pollution, Air Pollution-Nitrogen Oxides, Air Pollution-Sulphur 85, Antarctic-Environmental Protocol, Antarctic-Marine Living Resources, Antarctic Seals, Antarctic Treaty, Biodiversity, Climate Change, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Marine Dumping, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Wetlands and Whaling. **Has signed, but not ratified:** Air Pollution-Sulphur 94. **Ratified:** Kyoto Protocol.

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

\*\*GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

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*Sources for this report include: Agence France Presse, Asia Pulse, Associated Press, BBC Monitoring International Reports, Central Asia & Caucasus Business Report, Caspian News Agency, Caspian Business Report, CIA World Factbook, Current Digest of the Post-Soviet Press, The Economist, Energy Day, The Financial Times, FSU Energy, FSU Oil and Gas Monitor, Gas Connections, Global Insight, Hart's European Fuel News, Institute of Energy Policy (RU), Interfax News Agency, The International Herald Tribune, International Petroleum Finance, ITAR-TASS News Agency, Mining & Metals Report, The Moscow Times, Oil and Gas Journal, Petroleum Economist, Petroleum Finance Corporation, Petroleum Report, Platt's International Coal Report, Platt's Oilgram News, Polish News Bulletin, PR Newswire, Project Finance, Radio Free Europe/Radio Liberty, Reuters, RosBusinessConsulting Database, Russian Economic News, Russian Energy Monthly, Stratfor, The Russian Oil & Gas Report, Turkish Daily News, Ukraine Business Report, U.S. Department of Energy, U.S. Energy Information Administration, U.S. Department of State, World Gas Intelligence, and World Markets Research Center.*

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