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CONTENTS

RUSSIA'S ENERGY POLITICS: FOCUSING ON NEW MARKETS IN ASIA

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CONTENTS

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I. Introduction

In Russia's foreign policy, the central direction after 11 September 2001 was a close cooperative relationship with both the United States and Europe. However, President Vladimir Putin's second term in office continues to be fraught with Western complaints about his neoauthoritarianism and the declining significance of democratic institutions in Russia. U.S.-based organizations are leading this chorus of multifarious voices. Freedom House, for example, singles out Russia as a country that has become less democratic and more authoritarian during George W. Bush's presidency in the United States.[1]

Fortunately for President Putin, pragmatic overtones in his relationships with the West prevail. In addition to Russia's efforts in combating international terrorism, political leaders in Europe and, increasingly, the United States are concentrating their attention on Russia's role as a supplier of energy to world markets. On 1 January 2006, Russia will assume the rotating presidency of the Group of Eight (G-8). The next G-8 summit, in St. Petersburg, will focus on energy security. The focus on energy is in Russia's interests because it is indeed positioning itself as an energy superpower or, at the very least, an indispensable supplier of oil and natural gas to Europe.

Moscow has also begun pursuing an active policy toward Asia, rapidly expanding its economic links with China, Japan, and the Republic of Korea (ROK; South Korea). The purpose of this brief overview is not so much to clarify the prospects for Russia's energy links with Asia but instead to raise the following questions: Why is this shift important for Russia's economic interests? How may these links affect Russia's development prospects? What are the problems that could hinder Russia's drive to become a global supplier of energy with a new access to the huge markets in the Asia-Pacific region?

II. Shifting Status . . .

Along with its readiness to host the G-8 summit and progress in its relations with its eastern neighbors, Russia continues to find itself in very difficult socioeconomic circumstances, with widespread poverty, low productivity, an unfavorable long-term life expectancy scenario, and a declining population as well as many other shortcomings with regard to education, public health, regional development, and government inefficiency.

1. "'Russia's step backwards into the Not Free category [from Partly Free] is the culmination of a growing trend under President Vladimir Putin to concentrate political authority, harass and intimidate the media, and politicize the country's law-enforcement system,' said Freedom House Executive Director, Jennifer Windsor" (Freedom House 2004).

Vis-à-vis the rest of the world, and the major powers in particular, Russia's relative economic position has changed unfavorably during the past two decades (***Table 1***).

Table 1: **Global Output Shares: 1980–2015 (percentage)**

Countries and groupings	1980	2003	2015
United States	20	21	19
EU-25	26	22	17
Japan	7	7	5
China	3	13	19
India	3	6	8
Brazil	4	3	3
Russia	4	3	2
Other	34	25	27

Source: HM Treasury 2005, 25.
Note: Global output shares expressed in terms of purchasing power parity.

The energy-superpower scenario is perhaps the only medium-term option for enabling Russia's political leadership and the government to cope with various challenges associated with the country's unexpected and swift transition to capitalism as well as its declining influence in the world affairs. Indeed, ongoing geopolitical and geoeconomic shifts, domestic market forces, and the rapidly growing external demand for oil and natural gas have so far been more than convincing in the debate over adopting this scenario as a viable option for Russia.

Since 2000, oil production in Russia has increased by 40 percent. In 2005, oil production in Russia (including condensate) reached 470.2 million tons, or 11.2 million tons more than in 2004. Exports of oil, however, decreased by 2.7 million tons, to 251 million tons, because of declining exports to the newly independent states (mainly Ukraine), which imported 37 million tons in 2005 compared with 40 million tons in 2004. Russia's oil exports are growing faster than production. In 2005, Russia's oil exports to other markets—by pipeline, rail and other means (which account for about 10 percent of the total—increased by 12 percent, reaching 214 million tons (OGV 2005).

New projects are coming on line. Following Sakhalin 2, the Sakhalin 1 project will further boost crude output and exports. On 2 October 2005, ExxonMobil, the project operator, launched commercial oil production at the offshore Chaivo field. By 2007, output from Sakhalin 1 could reach 0.25 million barrels per day (MMbbl/d).

III. . . . and Growing Revenues

Growing oil exports and favorable oil prices contributed to hard currency and gold reserves in Russia's central bank and also facilitated the establishment in Russia of a stabilization fund (***Table 2***)[2] as well as an investment fund and allowed the swift repayment of Russia's external debt.

Table 2 shows that the stabilization fund is modest in comparison with similar funds established by many other economies, both oil-producing economies and export-oriented economies that import oil. However, in the current world economy, the fund could serve as a significant source of stability and certainty in periods of low oil prices. Reportedly the fund could grow further, expanding to $100 billion by 2008 and reaching one-third of Russia's projected hard currency and gold reserves.

IV. Current Priorities

To maintain and enhance its role as a leading oil producer and exporter, Russia needs to sharpen its strategic focus in a number of areas, including investing in infrastructure that opens up new export routes, enlarging reserves, and marketing.

The first and foremost concern ironically lies with the countries of Europe, the Baltic States, and the CIS neighbors. After the dissolution of the Soviet Union, Russia lost major ports in its western regions, including those on the Black Sea (Odessa) and the Baltic Sea (Tallinn, Ventspils, Riga, Klaipeda, and Butinge). Russia now has to pay transit fees and port charges for transporting oil by pipelines built by Transneft on the territories of Ukraine and Belarus. The construction of the Baltic Pipeline System (BPS), with its current annual capacity of 50 million tons, appears to be a major breakthrough in Russia's goal of avoiding transit through these countries.

Second, Russia wants to reduce its current dependence on Europe as the dominant destination for oil exports.[3] According to Transneft, this dependence is behind the

2. The stabilization fund's main sources of income—oil export duties and the oil extraction tax—are revenue dependent on oil prices. If the actual price exceeds the base price, the surplus is transferred to the fund. In addition, the government decides annually whether to transfer part or all of any fiscal surplus, regardless of the source. If the oil price drops below the federal budget's break-even point, the stabilization fund will be used to bridge the deficit. It may also be used to cushion expenditure burdens, such as foreign debt payments, when the fund exceeds a certain limit.

3. In 2003, 58 percent of Russian oil exports were sent to the European Union (EU); and in 2002, 22 percent of total net EU oil imports came from Russia. This represented 16 percent of total EU oil consumption. In addition, 88 percent of Russia's total natural gas exports were delivered to European countries. Approximately 65 percent of the natural gas Russia exported to Europe in 2003 was delivered to the EU, representing 32 percent of EU gas imports and 19 percent of total EU gas consumption (EU 2005).

Table 2: **Sovereign Stabilization Funds in Selected Countries**

Country	Name of fund	Assets (billions of dollars)	Established	Source
United Arab Emirates	Abu Dabi Investment Authority	250	n/a	Oil
Norway	Government Petroleum Fund	170	1990	Oil
Singapore	GIC	100	1981	Non-commodity
Hong Kong	Investment portfolio (HKMA)	100	1998	Non-commodity
Kuwait	Kuwait Investment Authority	65	1953	Oil
Singapore	Temasek Holdings	55	1974	Non-commodity
Brunei	Brunei Investment Authority	30	1983	Oil
Alaska (United States)	Permanent reserve fund	30	1976	Oil
Russia	Stabilization fund	29	2003	Oil
Malaysia	Khazanah National BHD	16	1993	Non-commodity
Taiwan	National Stabilization Fund	16	n/a	Non-commodity
Canada	Alberta Heritage	10	1976	Oil trust fund
Iran	Foreign Exchange Reserve Fund	8	1999	Oil
Kazakhstan	National Fund	5	2000	Oil, gas, metals

Source: Rozanov (2005, 2).
Notes: Stabilization funds must be $5 billion or more to be listed on this table. Funds are ordered according to assets.

phenomenon that can be called the "European discount." Similar to the "Asian premium" that oil importers in Northeast Asia pay because they lack adequate supply alternatives, the European discount reflects the lack of alternative outlets.[4] Thus, diverting some 30 million tons of oil from western Siberia to markets in the Asia-Pacific region would mean higher revenues.

4. This means a reported loss of about $1 on each barrel ($7 per ton) of exported oil.

Third, the Russian government intends to build up modern refinery capacity. Among its other plans, the government has proposed to avoid mixing the high-sulfur oil produced in the Volga region[5] with light oil extracted in western Siberia. Urals blend—Russia's main export oil blend—is the result of such mixing. Because of the widening gap in the prices of Brent (a North Sea crude) and Urals, the discount for Urals compared with Brent recently reached $5–$6 per barrel. If high-sulfur oil were cut off from the export pipeline, the value of western Siberian oil would increase, promising additional revenues.

Fourth, the Russian government envisages oil output reaching 530 million tons by 2015–20, including 65 million tons produced from new sources in eastern Siberia and Russia's Far East (Minpromenergo 2003; Saenko 2005). Under this scenario, oil exports could reach 310 million tons by 2020, with 30 percent of these volumes directed to markets in Northeast Asia and beyond.

Fifth, with the cost of adding new delivery infrastructure and new reserves on the increase, the total amount of investment required for the oil sector in the next 15–20 years could be close to $60–$70 billion, including the huge amount of investment needed for geological exploration and development in new areas.

Finally, to ensure that oil-producing companies invest in new exploration and development projects in new areas, delivery infrastructure must be built. The two-phase project called the Eastern Siberia–Pacific Ocean pipeline (abbreviated in Russian as VSTO) should serve as the infrastructural backbone of the Russian oil strategy aimed at reduced export dependence on Europe in order to avoid unwanted commercial losses,[6] a much improved environment for exploration and development in new areas, and the industrial and social advance of Russia's eastern regions.

The VSTO Project

Transneft recently submitted a feasibility study on the VSTO pipeline project to the Russian government for review. The document pertains to the first phase of the project only, which envisages the construction of the 2,400 km, 0.6 MMbbl/d capacity Taishet-

5. Produced by Tatneft, Bashneft, TNK-BP's Udmurtneft, and Saratovneftegaz as well as by YUKOS's Samaraneftegaz.

6. Transneft also plans to build a northern pipeline that can transport 0.48 MMbbl/d; it will run from Kharyaga in the Timan Pechora oil province to Indiga on the Pechora Sea. Transneft is planning to build this pipeline probably at the same time as the construction of the Pacific pipeline although Transneft had previously planned to launch the northern pipeline only after the initial stage of the VSTO had been completed. The northern pipeline is to carry crude from the Timan Pechora region, an area being developed by LUKOIL.

Skovorodino section and an oil terminal on Perevoznaya Bay. If approved, construction will reportedly be complete in 2008. Transneft plans to raise $6.6 billion to finance the first phase of the project, including a $5 billion issue of eurobonds.[7] In the meantime, President Putin—requesting in late October 2004 that the government speed up all interagency approval procedures—has declared the VSTO pipeline to be a project of national significance.

The second phase of the VSTO project may be financed through a project-financing scheme, bringing the full cost of the pipeline to $11.5 billion. The second phase will include the 1.0 MMbbl/d pipeline stretch from Skovorodino to Perevoznaya and the expansion of the capacity of the Taishet-Skovorodino section to 1.6 MMbbl/d. In addition, the government plans to maintain and increase its oil-by-rail exports to China and may consider a pipeline connection from Skovorodino to Daqing. This approach mirrors the one proposed by the 2020 energy strategy: a pipeline to the Pacific coast (50 million tons) plus a branch pipeline to Daqing (30 million tons).

What is known is that by January 2006, oil shipments by rail to China totaled 790, 000 tons, compared with 553,000 tons in January 2005 (OILRU 2006). Although a preliminary agreement has been reached between Transneft and the China National Petroleum Corporation on studying the issue of building an oil pipeline from Skovorodino to the Chinese border, the Russian government does not plan to sign an intergovernmental agreement for a project to replace oil shipments by rail because of its purely commercial nature.

The implementation of the second phase of the project would depend on overall progress in developing the oil fields already licensed to companies (Urubcheno-Takhomskoe, Kuyumbinskoe, Srednebutuobinskoe, Verkhnechonskoe, and Talakanskoe) as well as progress in implementing the special program of licensing new lots for development. Feed pipelines have also been planned to deliver oil from the new fields to Taishet and Kazachinskoe. In any event, filling the pipelines with oil would be the responsibility of the oil companies, including those under state control. According to Rosneft, a Russian firm established by a resolution of the government of Russia, there will be enough oil to operate the project profitably.

Rosneft itself made a decision on constructing a feeder pipeline, connecting its Vankor fields in Krasnoyarskiy Krai with Transneft's system. The feeder pipeline will be 350 km long, with an annual capacity of 18 million tons, the volume Vankor will produce four or five years after production begins. Also, the Talakan field in Yakutia could

7. Transneft maintains that it can raise as much as $7–$8 billion for a period of 15–18 years at an attractive refinancing rate. During the past 48 months, the company has invested about $3 billion by borrowing money.

produce 8–10 million tons of oil by 2010–12. Surgutneftegaz, the project operator, also announced its plans to build a feeder pipeline that, on its way south, could also connect the Verkhnechonskoe field to the VSTO pipeline.

For TNK-BP,[8] eastward-oriented projects are also likely to be a priority, including the development of the Verkhnechonskoe field with its 201.6 million tons of reserves. TNK-BP recently decided to allocate $270 million for the test phase of oil production there, and it plans to coordinate production with the VSTO pipeline project.

In 2005, Russia's Ministry of Natural Resources published a list of 104 blocks to be offered for exploration by private companies. The list supplements a similar catalog of 137 prospects published earlier. Both lists include seven exploration licenses set aside for Russian entities only. Reportedly the strategic fields—those fields subject to particular restrictions under Russian legislation—are defined as those with reserves (or resources) greater than 1.1 billion barrels of oil and 1 trillion cubic meters of natural gas.

The Pacific pipeline is indeed very important for Russia's trade and policy ties with Northeast Asia. It could play a significant role in oil supply to Northeast Asia, including Japan and China. The best option is to consider this pipeline in a broader integrative context, promoting trilateral and multilateral dialogues.

Natural Gas in Eastern Russia

In both eastern Siberia and Russia's Far East the confirmed reserves of natural gas are much larger than the confirmed reserves of oil, but among the problems constraining the development of natural gas reserves are the limited domestic demand for gas; the lack of access to neighboring markets, which are either insufficiently prepared for receiving pipeline gas, or rely on liquefied natural gas (LNG), or both; and expensive delivery infrastructure and processing facilities (***Table 3***).

There are many uncertainties about how fast and to what extent the reserves of natural gas in eastern Russia can be developed:

- Future of the Kovykta project, prospects for the separation of helium, and storage of helium;
- Separation of other valuable components for export-oriented industrial use;

8. TNK-BP is the result of a 2003 merger of the Tyumen Oil Company and British Petroleum.

- Prospects for gas transformation technologies and exports of liquids;
- Prospects for region-to-region export supply projects;
- Prospects for new development of urban areas;
- Prospects for improvement of agricultural settlements; and
- Protection of coal industry interests in Eastern Russia.

The pricing of natural gas—domestic and international—will define the development prospects of the gas industry in eastern Russia as well as the feasibility of investment in exploration and development in areas with very harsh climates and terrain. Long-term trends in the price of oil could provide some guidance. In most of the recent forecasts, Western energy analysts agree that $35–$40 per barrel could constitute the new plateau in prices, driven by strong demand in China, India, the United States, and Europe as well as by low spare capacity. Some analysts suggest oil prices could likely rise to $80 per barrel by 2008 before they drop to $60 per barrel by 2012, reflecting the influence of high costs on demand (Fesharaki 2005, 5).

Unlike exports of oil and LNG, which are mostly driven by the markets, the exports of pipeline gas will most likely depend on the policies and energy choices made by the governments of neighboring countries such as China, South Korea, North Korea (the Democratic People's Republic of Korea; DPRK), and Japan. Anatoliy B. Yanovskiy, director of the Energy Department of Russia's Ministry of Industry and Energy, has briefly mentioned the draft agreement prepared with the ROK with regard to pipeline gas supplies (Yanovskiy 2005). The relevant discussions between Gazprom and KOGAS took place in Moscow in May 2003. In January 2005, a high-level delegation from Gazprom visited Pyongyang. It is also possible that the high-level contacts between

Table 3: **Natural Gas in Eastern Russia, 2010–30 (billion cubic meters)**

Potential demand	2010	2020	2030
Extracting potential	60	160	190
Regional domestic demand (eastern Siberia and Far East)	15	29–35	44
Additional domestic demand (if connected to unified gas supply system)	15	51	80
External demand	17	40	50
Anticipated production range	32–47	79–130	130

Source: Yanovskiy (2005).
Note: Data include LNG.

Russia and China will facilitate the securing of market access for gas produced by the Sakhalin 1 project.

In Japan, on the other hand, a recent Ministry of Economy, Trade, and Industry publication (METI 2005, 13) refers to the set of issues called "Securing stable energy supply by strengthening fuel strategy":

- Independent development of oil and natural gas in such strategic areas as Russia;
- Diversification of supply sources;
- Protection of Japanese mining rights in the East China Sea and other areas;
- Strengthening of Japan's relationship with oil-and gas-supplying nations; and
- Promotion of natural gas–related research and development.[9]

In addition, METI intends to promote the environmentally friendly and efficient use of natural gas. To fulfill these goals, realistic transportation options for promoting natural gas imports from eastern Russia (Sakhalin) should be reviewed. It could be highly desirable to promote further innovation in the natural gas sector, aiming at the creation of new industries that would follow the success of LNG.

The LNG industry is about 40 years old and is still relatively new and regionalized in terms of LNG consumption. At the same time, it is a very dynamic sector that is expanding faster than any other sector of the international oil and gas industry. The economies of Northeast Asia, including Japan, South Korea, and Taiwan, led the development of this industry from its inception because they served as principal importers of LNG. In 2002, according to U.S. Energy Information Administration, 12 nations shipped 113 million metric tons of LNG, and Japan received two-thirds of global LNG imports in 1990 and 48 percent in 2002 (EIA 2004).

LNG projects are massive, expensive, and financed traditionally on the basis of long-term purchase contracts. LNG is costly to produce, but advances in technology are reducing the costs associated with liquefaction and re-gasification. During the past two decades, liquefaction costs have declined by 35–50 percent, while the cost of building an LNG tanker has fallen by about 45 percent. Re-gasification costs have

9. Japan has allocated ¥14 billion for the development of gas-to-liquid technology and dimethylether technology as well as other fuel sources. At the same time, the support measures for increased demand for natural gas accounted for another ¥14 billion. These amounts are relatively modest compared with the funding (¥225 billion) allocated for the effective management of oil reserves and the national petroleum stockpile.

also dropped. According to projections, world liquefaction capacity could reach 200 million tons by 2007 and 300 million tons by 2012, with a growing number of suppliers and importers.

In addition to Indonesia and Algeria, which are traditional LNG exporters, Russia, Norway, and Egypt are constructing liquefaction plants. The number of importers is also increasing. The United Kingdom, India, and China are currently building their first re-gasification facilities, and the Dominican Republic and Portugal have already opened LNG terminals. Approximately 40 new LNG projects have been proposed in North America. LNG was expected to supply 2 percent of U.S. gas consumption by 2003, and could increase to 8 percent of natural gas consumption in the United States by 2010 (EIA 2004).

Increasing prices for natural gas could allow compressed natural gas (CNG) transportation technology[10] to become a viable alternative in delivering gas to markets with stable but limited demand. Projects offshore from Sakhalin, in particular stranded and associated gas, could serve as the long-term resource base for supplying CNG to Northeast Asia, including, for example, Niigata because Japan's pipeline grid would allow it to reach other locations in Japan.

The strength of a CNG system is the ability to start small and to add (or redeploy) capacity as market changes. The big advantage of Niigata is the availability of underground gas storage as well as the backup gas systems represented by the local natural gas production and the LNG base.

The bulk of the capital and operating costs in a CNG system is the ships or barges, and the main challenges are reducing the loading and unloading time and the distances to be covered from the supply sources to market. Only a few years ago, experts would comment somewhat skeptically on the prospects of CNG: too much metal, and too little gas to move. Technologies, however, have been improving rapidly.

New types of ships that could be highly competitive compared with pipelines and LNG transport for distances of less than 2,500 nautical miles were recently proposed by Knutsen OAS Shipping AS, of Haugesund, Norway, with assistance from Europipe GMBH and Det Norske Veritas. These new types of ships—VOTRANS[11] and

10. Several papers presented at the Offshore Technology Conference in Houston, 2–5 May 2005, reviewed CNG as an economical alternative (and a complementary transportation mode) to LNG.

11. Volume-optimized transport (VOTRANS) technology includes cooling natural gas in the range of conventional temperatures (–30 degrees Celsius) and compression.

PNG[12]—are light in weight, making possible larger storage volumes of up to 34 million cubic meters of gas. The CNG carriers could serve as both transport and storage vehicles, discharging their cargo directly into the land-based gas grid via both offshore and onshore terminals, thus avoiding costly liquefaction, re-gasification, and storage.

Prospects for Electricity Exports

Although many cross-border electricity projects are still at the conceptual stage, they are gaining more attention from international organizations, research institutions, policymakers, and industrialists. During the past 30 years, electric power demand and consumption have grown rapidly in not only China but also Japan and the ROK, and this trend is likely to continue well into the future (***Table 4***).

As Table 4 shows, in Japan, commercial and residential users of electricity together formed the leading source of demand, surpassing industry, back in 1990. In the ROK, this turning point in the demand equation could be reached soon, while China may be two or three decades behind the ROK in this measure. What is important, however, is that in 2000 absolute demand for electricity in China had already surpassed combined demand by Japan and the ROK. Consider how this equation will evolve toward the year 2020—the target year set by the Chinese government for quadrupling the size of its gross domestic product compared with 2000.

It has estimated that, with annual growth in energy use maintained at 6 percent, China's primary energy demand will surge from 850 million tons in 1999 to 2,400 million tons in 2030. However, owing to the physical limits in the resource base, only 1,700 million tons of primary energy can be procured domestically. Thus, 25 years from now, China may well have to rely on approximately 600 million tons of imported oil—the same amount that the United States imports today—and approximately 200 billion cubic meters of natural gas—the same amount that EU countries import today. Large volumes of electricity imported from China's neighbors could help China alleviate energy supply imbalances (Li 2003).

These prospects elevate links with energy-exporting economies to a position high on China's agenda for foreign policy and its plans for overseas investment. It is not surprising that the Chinese government has crossed the psychological sacred line of self-reliance, accepting not only dependence on imported oil but also the coming partial reliance on external sources of electric power and natural gas supplies. In addition to China, the ROK, the DPRK, and Japan could, for diverse reasons, also become attentive to the idea of subregional cooperation in the electricity sector.

12. Pressurized natural gas (PNG) technology does not require cooling, only compression.

Indeed, there is no less of a rationale for tapping geographically close reserves of electricity compared with the already stated interest in importing more oil and natural gas from nearby sources, which in some cases could be used to produce electric power. Regional experts estimate that, in eastern Siberia and the Far East region of Russia, the additional generation capacity of hydroelectric, tidal power, and natural gas generation dedicated to exports could amount to 20 gigawatts (GW) in 2020 (Minakov 2005b). If nuclear and coal generation are added, the potential generation capacity would be 40 GW, which nears the current generating capacity of the ROK and far exceeds Russia's projected regional electricity needs.

These impressive figures appear relatively modest, however, in the context of China's anticipated needs. By 2030, to meet the rapidly growing electricity demand and replace old power plants, China will have to add 860 GW of generating capacity at a total cost

Table 4: **China, Japan, and the ROK: Electricity Consumption by Sector, 1973–2003 (terawatt hour)**

Consumption	1973	1980	1990	2000	2001	2002	2003
China	n.a.	301.6	621.2	1,355.6	1,471.6	1,641	1,910.5
China[a]	n.a.	23.3	49.3	81.8	88.9	108.7	127.6
Industry[a]	n.a.	19.2	38.2	48.9	52.8	69.7	83.5
Transport[a]	n.a.	0.23	0.91	2.42	2.66	2.91	3.41
Agriculture[a]	n.a.	2.32	3.67	5.79	6.56	6.68	6.75
Commercial, residential[a]	n.a.	1.64	6.53	17.78	19.66	21.52	24.62
Japan	421.67	520.25	758.44	956.62	940.43	956.32	946.79
Industry	291.38	327.79	366.41	399.01	382.72	386.32	384.81
Transport	13.23	15.23	16.81	18.57	18.44	18.51	18.51
Agriculture	1.20	1.21	1.65	1.60	1.62	1.62	1.44
Commercial & public use	30.14	52.96	180.65	267.43	268.41	272.19	267.79
Residential	79.19	116.09	184.15	257.85	257.19	265.86	261.59
Energy	6.53	6.98	8.78	12.15	12.07	11.83	12.66
ROK	12.83	32.74	94.38	233.54	250.37	300.79	318.06
Industry	8.85	22.72	57.79	126.95	132.16	160.44	168.51
Transport	0.13	0.40	1.01	2.04	2.26	2.27	2.33
Agriculture	0.08	0.19	1.46	5.31	5.99	6.7-16	5.94
Commercial & public use	2.22	4.11	16.39	68.14	70.76	89.64	96.71
Residential	1.55	5.32	17.74	31.10	39.21	42.28	44.57

Source: IEA (2005, 410 and 427); IEEJ (2005).
a Data in this row expressed as million tons of oil equivalent (MTOE).

of $883 billion (IEA 2004, 208). For example, by 2020, China's total hydroelectric power capacity could reach 250 GW compared with about 100 GW today, demonstrating the relatively insignificant scale of potential projects in Russia that are still perceived as megaprojects.

In the long run, hydropower plants in Khabarovskiy Krai alone could generate 200 terawatt hours (TWh) (23 GW capacity), while rivers in Amurskaya Oblast with an estimated capacity of 9 GW could support production of 80 TWh of electricity. More realistically, by 2025, if adequate investment were secured, several projects—some of them already under construction—would generate up to 80 TWh of electricity (Minakov 2005a).

From a purely business perspective, a reliable long-term electricity demand projection on the part of China and the ROK as well as the estimated price range will serve as the most important beacon for the design and commercial viability of the proposed projects. However, in the case of China—by far the largest market in the area—such projections are complicated by the country's ongoing electricity reform, its new plans for the development of its northeastern provinces, and the hard-to-predict price levels for fuels, in particular the price of coal and the cost of coal transportation. Moreover, large-scale cross-border projects could be designed and implemented with the support of the Chinese government as part of the process of reforming the electricity system to emphasize competitiveness.

The provinces of northeastern China, including Heilongjiang, Jilin, and Liaoning as well as the eastern part of Inner Mongolia, will serve as stepping-stones in implementing the first cross-border power transmission projects.[13] On one hand, the central government of China is now paying close attention to the economic restructuring and development of these provinces. On the other hand, some of these provinces are likely to enhance their roles as electric power donors. Their roles could be reinforced via power interconnection and high voltage direct current transmission systems originating in Russia.

V. Policy Component

Maintaining the status of an energy superpower is a continuous challenge. For Russia—its leaders and its government—this means an ongoing struggle with vested interests, investment-climate hurdles, and various external problems, including, above all, markets. It is no surprise that the bottom line in this struggle is money. The estimated cost of the

13. The second phase could involve the markets of Beijing, Tianjin, and Shandong provinces.

long-term 2020 energy strategy plan adopted by the Russian government in 2003 is between $650 and $800 billion. In 2005 alone the projected net profits of the eight leading oil companies in Russia could amount to $27 billion. However, the volume of exploratory drilling for oil has dropped from 5 million meters in 1990 to only 1 million meters in 2003 (Roscomstat 2004, 378). Then again, to sustain the current production levels of natural gas, for example, there is a need to invest approximately $10 billion during the coming two decades in the form of drilling new wells to secure an adequate production base. The central dilemma is that corporate interests could deviate quite far from what the government may perceive as the national development interests.

Foreign investment could help confront these and other challenging tasks. However, attracting foreign investment in oil and gas ventures means sharing not only costs but also revenues and even the right to make decisions, which is most important to President Putin's administration. Foreign investors and their host countries expect:

- Open access to energy resources,
- Transparency in the energy sector,
- Clear and legal rules for strategic energy investors,
- Promotion of production-sharing agreements in the oil and natural gas sectors,
- Open access to gas transport networks inside Russia, and
- Lead role for the private sector in supplying LNG to Western markets.

The foreign investors' wish list differs significantly from the national energy agenda that is currently taking shape in Russia, where the main attention is now focused on eastern Siberia and the Far East. The socioeconomic advancement of the eastern territories is perhaps even more important than the energy exports. The VSTO oil pipeline project and expansion of the gas transportation infrastructure to the Far East are correctly perceived as instruments of economic development. It seems also that Moscow is firmly set to promote Gazprom as the world's leading oil-gas-LNG producer. The government is also poised to make Rosneft the leading oil producer in Russia.

The Russian government and Russian lawmakers insist that foreign investors' access to Russia's energy riches should be under their firm control. In the amended Law on Subsoil Use, there will be new strategic ceilings set for foreign companies that want to develop Russian underground oil and gas reserves—not more than 1,100 million barrels of oil and not more than 1,000 billion cubic meters of gas. What Moscow really wants is for its Western energy partners to open their downstream sectors to the Russian oil, gas, and electricity exporters and also share their advanced technologies, including those needed for the offshore projects in the Arctic. Above all, Moscow

wants to be accepted by the West as a true partner, not a potential opponent surrounded by a network of North Atlantic Treaty Organization members. In a nutshell, the model of Norway as an energy producer and exporter as well as a member of the community of European countries could reflect Russia's wish list for its global energy future.

In the meantime, the strategic direction in Russia's energy posture is to diversify to the east, including China and India. Being a true energy superpower also requires that Russia maintain smooth relations with eastern neighbors that open their markets to Russian energy products. The transborder megaprojects, including power transmission grids and oil and natural gas pipelines, are very new in a sense. These projects promise not only economic benefits but also improved political ties and long-term stability and geopolitical security. It is important therefore that these ventures are seen from the standpoint of a common good.

Among not only energy professionals, diplomats, and politicians but also within the publics of several countries, interpretations and rumors surrounding the VSTO project regrettably have moved in a direction opposite of stability. In Japan and China, these discussions were dramatized without reason, creating an aura of competition and misunderstanding instead of collaboration and appreciation. These developments vividly demonstrated that discussing prospects for regional energy cooperation is not the same as interacting vis-à-vis specific projects in cooperative terms.

In contemporary Russia, the VSTO project-related domestic debates also matter and are reflected in discussions of where the oil terminal should be constructed. There were (and still are) numerous differences of opinion among the operators of the project, the government, legislators, independent experts, and nongovernmental organizations concerning the project's compliance with environmental regulations. Numerous questions were also raised with regard to sources of funding. Another source of uncertainty was the volume of oil reserves in eastern regions.[14] It is worth noting in this context that, according to Transneft, a branch pipeline to China is in the offing, but the final destination of the main pipeline will be Perevoznaya Bay. It is unlikely that a branch pipeline to China will be accompanied by an intergovernmental agreement.

Progress toward some kind of understanding between Russia and China in the realm of natural gas projects is very slow. For example, the November 2005 protocol of the Russia-China intergovernmental commission did not refer to cooperation in natural gas projects and prospects for gas deliveries from Russia to China. It seems that, in

14. Confirmed reserves are close to 1,500 million tons. The good news, so to speak, is that the level of geological exploration is only 12 percent in the Far East and less than 8 percent in Eastern Siberia (Minpromenergo 2003).

this realm, Russia and Gazprom would prefer to reach a government-to-government agreement.

In addition, the policy component behind the cross-border power interconnections currently under review may have a very significant influence on long-term investment plans and specific projects. There are indications that such policy support could be available in the case of cross-border transmission projects between Russia and China. At the moment, the chances of building a trilateral consortium involving the DPRK, the ROK, and Russia are less favorable compared with a trilateral agreement among Russia, China, and the ROK. The success of the six-party talks involving North Korea could facilitate Russia's energy links with South Korea.

As far as Japan is concerned, a natural gas pipeline project from Sakhalin would be difficult to realize anytime soon. In light of the increasing cost of LNG, however, potential importers of gas in Japan may explore a CNG transportation technology. It is important that stranded gas and associated gas can be used for these purposes and that production may potentially be under the control of Japanese companies.

In conclusion, all economies, including those in Europe and East Asia, are now facing the linked challenges of energy security, rising energy prices, and climate change. These challenges all point in the same direction: the need for an increased emphasis on energy efficiency and the decarbonization of energy sources. Achieving these goals in a way that enhances growth and competition will require new investment and technological advancement, development and use of the most cost-effective regulatory mechanisms, and coordinated international efforts.

Improving energy efficiency in Russia should be seen as an opportunity to improve the productivity of the economy and of individual businesses. Innovation can create new markets and increase competitiveness through greater resource efficiency and new investment opportunities. The policy and investment decisions taken in Russia with regard to not only the future of its export-oriented industries but also the massive application of technologies that improve energy efficiency could have significant implications.

This is the approach shared by the United States and the EU in their policy and energy dialogues with Russia. On both these fronts, Russia is engaged in intensive professional exchanges as both the United States and the EU cultivate Russia as their strategic source of energy supply for decades to come. For example, within the framework of energy dialogue with EU, more than 100 experts from Russian and European companies and governments are participating on a regular basis in working-level discussions on investment, infrastructure development, and trade and energy efficiency and are preparing practical recommendations for Moscow and Brussels.

Moreover, on 3 October 2005 the first meeting of the Permanent Partnership Council on Energy took place in London.

What could be highly desirable for Japan and Russia as well as the other economies of the area would be to look at these models and find ways of taking steps toward multilateral cooperative planning in the energy sector. The forthcoming 2006 G-8 summit should be seen as an opportunity for not only Russia but also its trans-Pacific partners, including Japan, the United States, and Canada. Facilitating the new flows of oil and natural gas from new sources in the eastern provinces of Russia would also serve their long-term interests.

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