Russia's Energy Politics: Focusing on New Markets in Asia

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In Russia's foreign policy, the central direction taken after September 11, 2001 was a close cooperative relationship with both the US and Europe. However, Vladimir Putin's second term in office continues to be fraught with western complaints about his neo-authoritarianism and the declining significance of democratic institutions in Russia. US-based organizations are leading this diverse chorus of voices. According to "Freedom House", for example, Russia has been singled out as a country that has become less democratic and more authoritarian during George W. Bush's presidency.[1]

Fortunately for 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, in the US are concentrating their attention on Russia's role as a supplier of energy to the world markets. On January 1, 2006, Russia will assume the rotating presidency of the G8. The next G8 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 mega-exporter", or, at the very least, an indispensable supplier of oil and natural gas to Europe.

The long-term forecast that the Russian government seems to be adopting consists of the following projections and estimates:

- Global energy demand to increase by one-third by 2020, and by 45% by 2025
- Oil demand to grow by 42% by 2025, increasing by 35 million barrels a day (Mbd) over current consumption levels
- Developing economies could account for up to 45% of incremental oil demand
- Demand for natural gas to increase by 60%, requiring an additional 1.7 trillion cubic meters (Tcm) of supply
- By 2020, dependency on natural gas imports on the part of the developed economies of Europe to increase to 60–70%
- By 2015, Russia to produce about 530 million tons (Mt) of oil a year (10.6 Mbd), exporting about 310 Mt (6.2 Mbd).
- By 2015, oil production in the new production areas in Eastern Siberia, Yakutia and Sakhalin to reach about 75 Mt a year
- By 2015, the Asia-Pacific region to account for 15–18% of Russia's oil exports, supported in large part by an oil pipeline from Eastern Siberia to the Pacific Ocean coast.
- By 2015, natural gas production to reach 740 Bcm, allowing exports of 290 Bcm, with natural gas production in Eastern Russia to increase by a factor of 15 over the current level, reaching about 75 Bcm.[2]

In the context of these projections, plans and expectations, Moscow has begun pursuing an active policy towards Asia, rapidly expanding its economic links with China, Japan and the ROK. The purpose of this brief overview is not so much to clarify the prospects for Russia's energy links with Asia, but rather to raise the following questions: (1) Why is this shift important for Russia's economic interests? (2) How may these links affect Russia's development prospects? (3) What are the problems that could hinder Russia's drive to become a "global" supplier of energy with new access to the huge markets in the Asia-Pacific region?

Shifting Status …

Despite its readiness to host the G8 summit and progress in its relations with its eastern neighbors, Russia continues to find itself in very difficult socio-economic circumstances, including widespread poverty, low productivity, an unfavorable long-term life expectancy scenario and declining population, not to mention many other shortcomings with regard to education, public health, regional development and government inefficiency.

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

Since 2000, oil production in Russia has increased by 40%, while in 2005 it could grow further by about 3%, meaning an additional 13–15 Mt, which is roughly equivalent to the amount of oil exports to China by rail planned for 2006. In September 2005, Russian oil companies were producing 9.53 Mbd, with 349.5 Mt being produced between January and September, representing a 2.4% increase on production volumes in the same period of

[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.
See: http://www.freedomhouse.org/media/pressrel/122004.htm

[2] Victor B. Khristenko, "The 21st Century Energy Sector: Efficiency and Security," Opening Speech at the Main Session of the 5th All-Russia Oil and Gas Week, Moscow, October 31, 2005.

Table 1. Global Output Shares: 1980-2015 (in purchasing power parity terms)*

	1980	2003	2015
US	20	21	19
EU25	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: *IMF, Consensus Forecast, HM Treasury* in "*Long-term Global Economic Challenges and Opportunities for Europe*", (London: March 2005, HM Treasury), p. 25.

the previous year. Russia's oil exports are growing faster than production. In September 2005, non-CIS exports via Transneft's pipeline system climbed to a new high of 3.99 Mbd, an increase of 15.5% compared with same period of last year. In 2005, total exports, including those by pipeline, rail and other means (the latter accounts for about 4.5% of the total), could expand by 10–11%. In physical terms, exports would constitute about 275 Mt, with domestic demand remaining close to 200 Mt,[3] refining about 70 Mt of products to be also exported, in addition to crude oil.

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

… and Growing Revenues

Growing oil exports and favorable oil prices contributed to the Russian Central Bank's hard currency and gold reserves, while also facilitating the establishment of the Stabilization Fund[4] (Table 2), followed by the Investment Fund and allowing the swift repayment of Russia's external debt.

As Table 2 demonstrates, the Stabilization Fund is modest in comparison with similar funds established by many other economies, both oil-producing and export-oriented economies that import oil. However, in the current economic context, 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 the projected hard currency and gold reserves.

Current Priorities

Obviously, in maintaining and enhancing 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, marketing and other issues.

Ironically, the ***first*** and foremost concern lies with the countries of Europe, the Baltic States and the CIS neighbors. Following the dissolution of the Soviet Union, Russia lost major ports in the west, including those on the Black Sea (Odessa) and the Baltic Sea (Tallinn, Ventspils,

Table 2. Sovereign (Stabilization) Funds in Russia and Other Countries*

Country	Fund Name	Assets	Established	Source
United Arab Emirates	Abu Dabi Investment Authority	250,000	n/a	Oil
Norway	Government Petroleum Fund	170,000	1990	Oil
Singapore	GIC	100,000	1981	Non-commodity
Hong Kong	Investment Portfolio (HKMA)	100,000	1998	Non-commodity
Kuwait	Kuwait Investment Authority	65,000	1953	Oil
Singapore	Temasek Holdings	55,000	1974	Non-commodity
Brunei	Brunei Investment Authority	30,000	1983	Oil
USA Alaska	Permanent Reserve Fund	29,800	1976	Oil
Russia	Stabilization Fund	29,000	2003	Oil
Malaysia	Khazanah National BHD	15,800	1993	Non-commodity
Taiwan	National Stabilization Fund	15,800	n/a	Non-commodity
Canada	Alberta Heritage	9,800	1976	Oil Trust Fund
Iran	Foreign Exchange Reserve Fund	8,000	1999	Oil
Kazakhstan	National Fund	5,200	2000	Oil, gas , metals

* Above $5 billion
Source: Andrew Rozanov, "Who Holds the Wealth of Nations?", *State Street Global Advisors*, August 2005, p. 2

[3] In January-June 2005, Russia's oil exports stood at 125 Mt. They were valued at $32.5 billion and a ccounted for 33% of export revenues and 53.4% of exports of fuels (in June, the average export price for "Urals" was $324 per ton).
[4] The fund's main source of income is revenue dependent on oil prices, namely oil export duties and the oil extraction tax. If the "actual" price exceeds the "base" price, the surplus is transferred to the fund. In addition, the government decides on an annual basis whether to transfer part or all of any fiscal surplus, regardless of the source. On the other hand, 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.

Riga, Klaipeda and Butinge). It now has to pay transit fees and port charges for transporting oil by pipelines built by Transneft on the territories of Ukraine and Belarus. In the context of avoiding transit via these countries, the construction of the Baltic Trunk-line System (BTS), with its current annual capacity of 50 Mt, appears to be a major breakthrough.

Secondly, Russia wants to reduce its current dependence on Europe as the dominant destination for oil exports.[5] According to Transneft, this dependence is behind the phenomenon that can be called the "European discount". Similar to the "Asian premium", which oil importers in Northeast Asia pay because they lack adequate supply alternatives, the "European discount" reflects the lack of alternative outlets.[6] In this context, diverting some 30 Mt of oil from Western Siberia to markets in the Asia-Pacific region means higher revenues.

Thirdly, the government intends to build up modern refinery capacity in Russia. Among other plans, it is proposed to limit the mixing the high-sulfur oil produced in the Volga region[7] with light oil extracted in Western Siberia. "Urals" — Russia's main export oil blend — is the result of such mixing. Because of the widening gap in the prices of Brent 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.

Fourthly, the government envisages oil output reaching 530 Mt by 2015–2020, including 75 Mt produced from new sources in Eastern Siberia and the Far Eastern region. Under this scenario, oil exports could reach 310 Mt by 2020, with 30% of these volumes directed to markets in Northeast Asia and around 2020.

Fifthly, 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 $240 billion, including the huge amount of investment needed for geological exploration and development in new areas.

Finally, in order 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 (1) reduced export dependence on Europe to avoid unwanted commercial losses[8], (2) a drastically improved environment for exploration and development in new areas, and (3) the industrial and social advancement of Russia's eastern regions.

The VSTO Project

Recently, Transneft has submitted a feasibility study on the VSTO pipeline project to the 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 Mbd capacity Taishet-Skovorodino section and an oil terminal on Perevoznaya Bay. If approved, construction will reportedly be completed in 2008. Transneft plans to raise $6.6 billion to finance the first phase of the project, including a $5 billion issue of Eurobonds.[9] In the meantime, President Putin has declared the VSTO pipeline to be a project of national significance, requesting from the government to speed up all the inter-agency approval procedures in late October 2004.

The second phase of the VSTO project may be financed through a project-financing scheme, bringing the full cost of the pipeline to $11~15 billion. The second phase will include the 1.0 Mbd pipeline stretch from Skovorodino to Perevoznaya and the expansion of the capacity of the Taishet–Skovorodino section to 1.6 Mbd. 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 Mt) plus a branch pipeline to Daqing (30 Mt).

What is known is that by October 2005, according to Russian Railways Co., Russian oil companies shipped 5.7 Mt of crude oil by rail to China, an increase of 22% over the same period in 2004. A preliminary agreement had been reached between Transneft and the CNPC on studying the issue of building an oil pipeline from Skovorodino to the Chinese border. On the other hand, It seems that the Russian government does not plan to sign an intergovernmental agreement for such a project to replace oil shipments by rail, referring to 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 (Yurubcheno-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.

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[5] In 2003, 58% of Russian oil exports were to the EU and 22% of total net EU oil imports in 2002 came from Russia. This represented 16% of total EU oil consumption. In addition, 88% of its total natural gas exports were delivered to European countries. Approximately 65% of the natural gas exported to Europe in 2003 was delivered to the EU, representing 32% of EU gas imports and 19% of total EU gas consumption.

[6] Reportedly, this means a loss of about $1 on each barrel ($7 per ton) of exported oil.

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

[8] Transneft also plans to build the 0.48 Mbd Northern Pipeline, which will run from Kharyaga in the Timan Pechora oil province to Indiga on the Pechora Sea, probably at the same time as the Pacific pipeline is being constructed. Previously, Transneft had planned to launch the former only once the initial stage of the latter had been completed. The northern pipe is to carry crude from the Timan Pechora region, an area being developed by LUKoil.

[9] 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 last 48 months, the company has invested about $3 billion by borrowing money.

In any event, filling the pipeline with oil would be the responsibility of the oil companies, including those under state control. According to Rosneft, there will be enough oil to operate the project profitably.

Firstly, Rosneft itself made a decision on constructing a feeder pipeline, connecting its Vankor fields in Krasnoyarskiy Krai with Transneft's system. It will be 350km long, with an annual capacity of 18 Mt, the volume Vankor will produce 4–5 years after production begins.

Secondly, the Talakan field in Yakutia could produce 8–10 Mt of oil by 2010–20012. 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.

Thirdly, for TNK-BP, eastward-oriented projects are also likely to be a priority direction, including the development of the Verkhnechonskoe field with its 201.6 Mt of reserves. This is indicated by the recent decision by the company to allocate $270 million for the test phase of oil production and plans to coordinate production with the VSTO pipeline project.

Meanwhile, in 2005, the Natural Resources Ministry 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, "strategic fields", i.e. those subject to particular restrictions under Russian legislation, are defined as those with reserves (or resources) above 1.1 billion barrels of oil and 1 trillion cubic meters of natural gas.

The Pacific pipeline, indeed, is 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 cooperation.

Natural Gas in Eastern Russia

Both in Eastern Siberia and the Far Eastern region, the confirmed reserves of natural gas are much larger than the confirmed reserves of oil, but among the problems constraining the development of these reserves are (1) the limited domestic demand for gas; (2) the lack of access to neighboring markets, which are either insufficiently prepared for receiving pipeline gas, or rely on LNG, or both; and (3) expensive delivery infrastructure and processing facilities (Table 3).

There are many uncertainties with regard to how fast and to what extent the reserves of natural gas in Eastern Russia can be developed. The list of concerns includes the following issues:

- The future of the Kovykta project, prospects for the separation of helium and its storage
- The separation of other valuable components for export-oriented industrial use
- Prospects for gas transformation technologies and exports of liquids
- Prospects for region-to-region export supply projects
- Prospects for the new development of urban areas
- Prospects for the improvement of agricultural settlements
- The protection of coal industry interests in Eastern Russia.

Finally, 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 climatic and terrain conditions. To that extent, 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 (bbl) could constitute a new plateau in prices, driven by strong demand on the part of China, India, the US and Europe, as well as low spare capacity. Some of them suggest that a likely scenario would see oil prices rising to $80/bbl by 2008, before dropping to $60/bbl by 2012, reflecting the influence of high costs on demand.[10]

Unlike in the cases of oil and LNG exports, which are mostly driven by the markets, the prospects for pipeline gas exports will depend on the policies and energy choices made by the governments of neighboring countries, including China, the Koreas and Japan. It is worth noting that, speaking at the Siberian Energy Congress held in June 2005 in Irkutsk, Anatoliy B. Yanovskiy, Director of the Energy Department of the Ministry of Industry and Energy, briefly mentioned the draft agreement prepared with the ROK with regard to pipeline gas supplies. 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 Russia and China will facilitate the securing of market access for gas produced by the Sakhalin 1 project.

Table 3. Natural Gas in Eastern Russia: 2010–2030 (Bcm, including LNG)

	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 UGS)	15	51	80
External demand	17	40	50
Anticipated production range	32–47	79–130	130

Source: Anatoliy B. Yanovskiy, "Energy Strategy of Russia and the Role of Siberia and the Far East", address at the Siberian Energy Congress, Irkutsk, June 7, 2005.

[10] Fereidun Fesharaki, FACTS Inc., cited in the *Oil & Gas Journal*, May 2005, p.5.

In Japan, on the other hand, the most recent METI publication, "FY2006 Economic and Industrial Policy: Key Points", refers to the set of issues called "Securing a stable energy supply by strengthening fuel strategy."[11] This document identified various measures and steps, including the following:

- The independent development of oil and natural gas in such strategic areas as Russia
- The diversification of supply sources
- The protection of Japanese mining rights in the East China Sea and other areas
- The strengthening of Japan's relationship with oil- and gas-supplying nations
- The promotion of natural gas-related research and development.[12]

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. What could be highly desirable is to promote further innovation in the natural gas sector, aiming at the new industries creation that would follow the success of Liquefied Natural Gas (LNG).

The LNG industry is about 40 years old. It is still relatively new and regionalized in terms of LNG consumption. At the same time, this is very dynamic sector, which is expanding faster than any other sector of the international oil and gas industry. The economies of Northeast Asia, including Japan, the ROK and Taiwan were behind the development of this industry from its inception, serving as principles importers of LNG. In 2002, according to Energy Information Administration, 12 nations shipped 113 million metric tons of LNG. Japan received two-thirds of global LNG imports in 1990 and 48% in 2002.

LNG projects are massive and expensive and traditionally financed based on long-term purchase contracts. LNG is costly to produce, but advances in technology are reducing the costs associated with the liquefaction and re-gasification. Over the last two decades, liquefaction costs have declined by between 35% to 50%, while the cost of building an LNG tanker has fallen by about 45%. Re-gasification costs have also dropped. According to projections, global liquefaction capacity could reach 200 Mt by 2007 and 300 Mt by 2012, with a growing number of suppliers and importers.

In addition to traditional LNG exporters such as Indonesia and Algeria, Russia, Norway and Egypt are constructing liquefaction plants. The number of importers is also increasing. The UK, India and China are currently building their first re-gasification facilities, and the Dominican Republic and Portugal already opened their LNG terminals. About 40 new LNG projects have been proposed in North America. LNG currently supplies about 2% of U.S. gas consumption, but could take a 25% to 30% share of the gas market by 2020.

Increasing prices for natural gas could allow Compressed Natural Gas (CNG) transportation technology[13] 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 Niigata, for example, considering its pipeline grid, which reaches other locations in Japan.

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

The bulk of the capital and operating costs in a CNG system is accounted for by the ships or barges, and the main challenges are reducing loading/unloading times and the distance to be covered from the supply source to markets. Only a few years ago, experts would comment on the prospects of CNG in a somewhat skeptical way: too much metal and too little gas to move. Technologies, however, were improving rapidly. A new concept for CNG transportation and a new type of ship were recently proposed with a containment system that is 50% of the weight required by conventional pressure ship design.[14]

The new types of ship (VOTRANS[15] and PNG[16] types) are much lighter in weight, making possible a large storage volume of up to 34 million cubic meters of gas. For distances of 2,500 nautical miles or less, these technologies should be competitive both vis-à-vis pipeline gas and LNG. The CNG carriers could serve as 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. In terms of electricity

[11] Available at: http://www.meti.go.jp/english/policy/FY2006keypoints.pdf

[12] JPY14 billion was allocated for the development of GTL and DME technologies, as well as other fuel sources. At the same time, the support measures for increased demand for natural gas accounted for another JPY14 billion. These amounts are relatively modest compared with the funding allocated for the effective management of oil reserves and the national petroleum stockpile (JPY225 billion).

[13] Several papers presented at the Offshore Technology Conference in Houston, May 2–5, 2005, reviewed CNG as an economical alternative (complimentary transportation mode) to LNG.

[14] Introduced by Knutsen OAS Shipping AS, Haugesund, Norway with assistance from Europipe GMBH and Det Norske Veritas, it could be highly competitive compared to pipelines and LNG transport for distances less than 3,000 nautical miles.

[15] Volume Optimized Transport (VOTRANS) technology includes cooling natural gas in the range of conventional temperatures (minus 30 degrees Celsius) and compression.

[16] Pressurized Natural Gas (PNG) technology does not require cooling, only compression.

consumption trends, over the last 30 years, electric power demand has grown rapidly not only in China, but also in Japan and the ROK, and this trend is highly likely to continue well into the future (Table 4).

As the table demonstrates, 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 regard. What is important, however, is that in 2000, absolute demand for electricity in China had already surpassed combined demand on the part of Japan and the ROK. Consider how this equation would evolve towards the year 2020 — the target year set by the Chinese government for quadrupling the size of its GDP compared with 2000.

It was estimated that, with annual growth in energy use maintained at 6%, China's primary energy demand will surge from 850 Mt in 1999 to 2,400 Mt in 2030. However, due to the physical limits in the resource base, only 1,700 Mt of primary energy can be procured domestically. This means that in 25 years from now, China would have to rely on about 600 Mt of imported oil — the same amount as the US imports today, and some 200 Bcm of natural gas — the same as EU countries import today. Obviously, large volumes of electricity imported from its neighbors could help to alleviate energy supply imbalances.[17]

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. Not surprisingly, 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 sub-regional cooperation in the electricity sector.

Indeed, there is no less 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. According to estimates by regional experts, in Eastern Siberia and the Far Eastern region of Russia, the additional generation capacity of hydroelectric, tidal power and natural gas generation dedicated to exports could amount to 20 GW in 2020. 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.

On the other hand, these impressive figures appear

Table 4. China, Japan and the ROK: Electricity Consumption by Sector, 1973–2003 (TWh)

	1973	1980	1990	2000	2001	2002	2003
Total consumption, incl.							
China	**– –**	**301.6**	**621.2**	**1,355.6**	**1,471.6**	**1,641**	**1,910.5**
In MTOE*	**– –**	**23.3**	**49.3**	**81.8**	**88.9**	**108.7**	**127.6**
Industry*	– –	19.2	38.2	48.9	52.8	69.7	83.5
Transport*	– –	0.23	0.91	2.42	2.66	2.91	3.41
Agriculture*	– –	2.32	3.67	5.79	6.56	6.68	6.75
Commercial, residential *	– –	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

* Million tons of oil equivalent.
Source: *International Energy Agency Statistics, Electricity Information 2005* (IEA/OECD: Paris, 2005), 410, 427 and APEC Energy Database, available at http://www.ieej.or.jp/egeda/database/database-top.html

[17] See Li Zhi Dong, "Energy and Environmental Problems behind China's High Economic Growth: A Comprehensive Study of Medium- and Long-term Problems, Measures and International Cooperation", The Institute of Energy Economics, Japan, March 2003.

relatively modest in the context of China's anticipated needs. By 2030, in order to meet the rapidly growing electricity demand and replace old power plants, China would have to add 860 GW of generating capacity at a total cost of $883 billion.[18] For instance, by 2020, 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 mega-projects.

In the long run, hydropower plants in Khabarovskiy Krai alone could generate 200 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.

From the business perspective, a reliable long-term electricity demand projection for 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 ongoing electricity reform, new plans for the development of its northeastern provinces and 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.

In any event, the provinces of Northeastern China, including Heilongjiang, Jilin and Liaoning provinces, as well as the eastern part of Inner Mongolia, will serve as a stepping-stone in implementing the first cross-border power transmission projects.[19] 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". This role can be reinforced via power interconnection and high-voltage direct current transmission systems originated in Russia.

Problems and Uncertainties

Maintaining the status of an "energy mega-exporter" is a continuous challenge. For Russia's leaders and government, this means an ongoing struggle with vested interests, investment climate hurdles and various external problems, including, above all, markets. Not surprisingly, the bottom line in this struggle is money. The estimated cost of the long-term Energy Strategy 2020 plan adopted by the government in 2003 is between $650 and $800 billion. On the other hand, 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 dropped from 5 million meters in 1990 to only 1 million meters in 2003.[20] Then again, in order to sustain current production levels of natural gas, there is a need to invest around $10 billion in new wells in the next two decades, so that an adequate production base can be secured.

The central dilemma is that corporate interests could diverge quite considerably from what the government may perceive as the national development priorities. Foreign investment could help confront these and other challenges. However, attracting foreign investment to oil and gas ventures means sharing not only costs, but also revenues and even the right to make decisions, which Putin's administration values the most. The expectations on the part of foreign investors and their host countries include (1) "open access" to energy resources; (2) the "transparency" of the energy sector; (3) clear legal rules for "strategic" energy investors; (4) promotion of production-sharing agreements (PSA) in the oil and natural gas sectors; (5) open access to gas transport networks within Russia; and (6) the playing of a leading role by the private sector in supplying LNG to the Western markets.

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

The government and lawmakers insist that foreign investors' access to Russia's energy riches should be subject to strict controls. In the amended Law on Subsoil Use, there will be new "strategic" ceilings set for foreign companies developing oil fields (not more than 1,100 barrels of oil) and natural gas fields (not more than 1,000 Bcm of gas) in Russia. What Moscow really wants is for its Western energy partners to open up their downstream sectors to Russian oil, gas and electricity exporters, and share advanced technologies, including those needed for offshore projects in the Arctic. Above all, it wants to be *accepted* by the West as a true partner, rather than a potential opponent to be surrounded by the NATO network. In a nutshell, the model of Norway as an energy producer and exporter, as well as a member of Europe, could offer some guidance regarding Russia's own "wish list" *vis-à-vis* its global energy future.

In the meantime, the strategic direction in Russia's energy posture is eastward diversification, focusing on the area including China and India. Being a true "energy mega-exporter" also requires that Russia maintain smooth relations with eastern neighbors that have opened up their markets to Russian energy goods. Cross-border mega-projects, including power transmission grids and oil and

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[18] *World Energy Outlook 2004* (IEA/OECD: Paris, 2004), p.208.
[19] The second phase could involve the markets of Beijing, Tianjin and Shandong provinces.
[20] *Russian Statistical Yearbook 2004* (Moscow: Roscomstat, 2004), p. 378.

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 in terms of security. It is important, therefore, that these ventures are dealt with from the standpoint of "the common good".

Regrettably, the various interpretations and rumors surrounding the VSTO project have pushed discussions in the opposite direction, involving not only energy professionals, diplomats and politicians, but also the public. In Japan and China, these discussions have been dramatized without reason, creating an aura of competition and misunderstanding, rather than collaboration and appreciation. These developments have vividly demonstrated that *discussing* the prospects for regional energy cooperation is not the same as *interacting* with regard to specific projects in cooperative terms.

In contemporary Russia, domestic debates on the VSTO project also matter, and are reflected in discussions about where the oil terminal should be constructed. There were (and still are) numerous differences among the operators of the project, the government, legislators, independent experts and NGOs concerning the project's compliance with environmental regulations. Numerous questions have also been raised with regard to sources of funding. Another source of uncertainty was the volume of oil reserves in Eastern regions.[21] It is worth noting in this context that, according to Transneft, a branch pipeline to China seems to be in the offing (negotiated by Transneft and CNPC), but the final destination of the main pipeline will be Perevoznaya Bay.

On the other hand, progress towards 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 inter-governmental commission did not refer to cooperation in natural gas projects and prospects for gas deliveries from Russia to China. It seems that in this realm, Russia and Gazprom would prefer to reach an inter-governmental 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. On the other hand, the chances of building a trilateral consortium involving the DPRK, the ROK and Russia are less favorable at the moment, compared with a trilateral agreement between Russia, China and the ROK. In this context, the success of the six-party talks involving the DPRK could facilitate Russia's energy links with the ROK.

As far as Japan is concerned, a natural gas pipeline project from Sakhalin would be difficult to realize any time soon. On the other hand, in light of the increasing cost of LNG, potential importers of gas in Japan may explore compressed natural gas transportation technology. It is important to enable stranded gas and associated gas to be used for these purposes and production may potentially be under the control of Japanese companies.

The Policy Component

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 de-carbonization of energy sources. Achieving these goals, in a way that enhances growth and competitiveness, will require (1) new investment and technological advancement, (2) the development and use of the most cost effective regulatory mechanisms, and (3) 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, as well as to ensure additional energy supply to the global markets. Innovation can create new markets and increase competitiveness through greater efficiency in resources use. In this context, the policy and investment decision 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 international effects.

This is the approach shared by the US and the EU in their policy and energy dialogues with Russia. On both these fronts, Russia is engaged in intensive policy-level and professional exchanges, as both the US and the EU cultivate it as their strategic source of energy supply for the decades to come. For example, within the framework of energy dialogue with EU, the expert-level energy dialogue has been launched in 2000. Currently, more than 100 experts from companies and government agencies are participating on a regular basis in discussions focused on investment, infrastructure development, trade and energy efficiency, nearing the stage of practical recommendations in the context of public-private partnership in implementing energy projects and programs. Moreover, on October 3, 2005, the first meeting of the Standing Partnership Council on Energy took place in London. On the other hand, there is a high-level policy dialogue accompanied by professional exchanges between Moscow and Washington.

As far as the 2006 G8 Summit agenda is concerned, its main direction should be *enhanced energy security on a global scale coupled with the long-term stability of the energy markets*, with the following building blocks as the foundations of this concept:

- Transparency and availability of data on energy demand, reserves and resources
- Long-term supply contracts and producer-consumer dialogues
- Adequate development of energy infrastructure
- Improved energy efficiency, including hydroelectric power and other renewables
- Intensive R&D aimed at promoting new sources of energy.

[21] Confirmed reserves are close to 1,500 Mt. The good news, so to speak, is that the level of geological exploration is only 12% in the Far East and less than 8% in Eastern Siberia.

What could be highly desirable for the economies of Northeast Asia is to look at these proposals, as well as the emerging cooperative models involving Russia, and find ways to take concrete steps towards long-term multilateral coordination and planning in the energy sector, while also keeping in mind the environmental merits of energy cooperation.

It is not surprising, however, that despite numerous discussions, international conferences and research projects conducted thus far, the governments of the countries concerned currently find themselves at the very initial stages of conceptualization with regard to both energy cooperation and regional economic community building. The central dilemma that the governments could face is the choice between *institution building* and a *functional approach* to regional cooperation.[22] The latter involves a pragmatic effort aimed at the areas critically important for the economies involved, including energy and the environment. This approach, however, does not exclude steps that lead to regime-making such as, for example, adherence to the Energy Charter Treaty (ECT).[23]

The bottom line, however, is in the choice of a model for interaction on energy issues. For the sake of short- to medium-term interests, the producer-consumer positioning — such as in the OECD-OPEC dialogue — is seen by many experts as a practical option. This approach, however, will be inadequate for addressing long-term challenges, or embracing opportunities that transcend the issue of energy prices and focus instead on stability of supply and timely investment in exploration, development and delivery infrastructure construction. In this context, the forthcoming 2006 G8 Summit should be seen as an opportunity not only for Russia and its European partners, but also for China, Japan, the US and the ROK. After all, facilitating new flows of oil and natural gas from new sources in Eastern Russia would also serve their long-term interests.

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[22] Takio Yamada, "Towards a Principled Integration of East Asia: A Concept for an East Asian Community", *Gaiko Forum*, Fall 2005, p. 31.

[23] The EST focuses on five broad areas: (1) the protection and promotion of foreign investment in the energy sector; (2) free trade in energy materials based on WTO rules; (3) freedom of energy transit through pipeline systems and power transmission grids; (4) energy efficiency and the reduction of energy-related environmental impacts; and (5) a dispute-resolution mechanism. See, for example, Keizo Takewaka, "Energy Cooperation in Northeast Asia", *Gaiko Forum*, Fall 2005, pp. 47-57.
