2005 Niigata Japan-Russia Energy Forum in Niigata

Date:	Tuesday 8th & Wednesday 9th March 2005
Venue:	Toki Messe (Bandaijima 6-1, Niigata City)
Organizer:	ERINA
Co-organizers:	Niigata Prefecture, Niigata City
Support:	Tohoku Electric Power Co., Inc.
Cooperation:	Asia Pipeline Research Society of Japan (APRSJ) Far Eastern Center for Strategic Research on Fuel and Energy Complex Development (FECSRED) Energy Systems Institute of the Russian Academy of Sciences, Irkutsk Embassy of the Russian Federation in Japan Trade Representation Office of Russia in Japan

Introduction

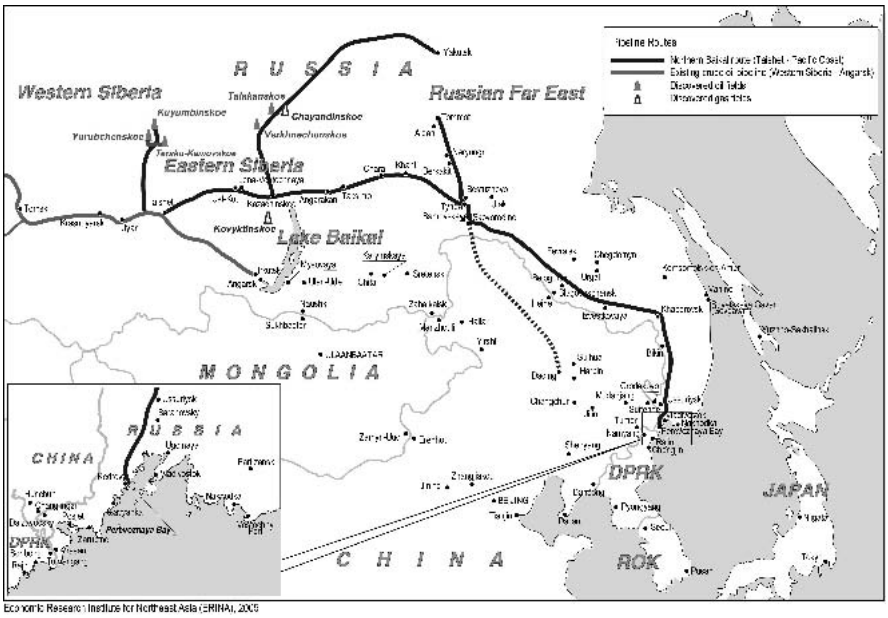
On 8th and 9th March 2005, the 2005 Japan-Russia Energy Forum in Niigata (hereafter referred to as the Forum) was held at Toki Messe (Niigata City). This conference was the second such meeting to be organized by ERINA, following the 1st Niigata Energy Forum, which was held in February 2004, in collaboration with the Northeast Asia Economic Forum, with funding provided by the Japan Foundation Center for Global Partnership. The Niigata Energy Forum marked the culmination of the Energy Security and Sustainable Development in Northeast Asia project, which ERINA had been conducting since 2001.

34 speakers from Japan and Russia, a number of representatives of international institutions, and around 100 observers participated in this year's Forum, which was jointly chaired by Susumu Abe (Acting President, Asia Pipeline Research Society of Japan) and Vladimir Ivanov (Director, Research Division, ERINA).

The aim of this Forum was to focus on the ongoing issues of the project aimed at constructing a crude oil pipeline from Eastern Siberia to the Pacific (hereafter referred to as the Pacific pipeline project) and natural gas development in Eastern Siberia and Far Eastern Russia, in order to provide an opportunity to review Japan-Russia energy dialogue and cooperative relationships at the government level.

With regard to the Pacific pipeline project, at the end of December 2004, the Russian Federal Government announced its decision formally to approve the implementation of this project. Moreover, at the end of April 2005, following this Forum and immediately after his visit to Japan in order to participate in a meeting of the Japan-Russia Intergovernmental Trade Committee, Minister for Industry and Energy Viktor Khristenko signed the Directive on the Construction Phase of the Eastern Siberia - Pacific Pipeline. Under this directive, the first phase of the project, involving the construction of the pipeline from Taishet in Irkutsk Oblast to Skovorodino in Amur Oblast, about 2,300km east of Taishet, is due to be completed by the latter half of 2008, when it is planned to begin deliveries of 30 million tons of crude oil from Western Siberia. At the same time, an oil terminal will be built in Perevoznaya Bay in Primorsky Krai. Transneft, the state-owned pipeline monopoly that will be the contractor for the construction of the Pacific pipeline, has announced a plan to build a further pipeline from Skovorodino to Perevoznaya Bay, about 1,900km away, and to transport crude oil by rail until this pipeline is completed.

In the second phase (the timing of which was not specified in the directive), it is envisaged that a further 50 million tons of crude oil will be supplied annually from Eastern Siberia, with a pipeline between Skovorodino and Perevoznaya being built. As a result of the Pacific pipeline project, the Russian government envisages that a maximum of 80 million tons of crude oil will be transported annually. However, at this point in time, there are quite a few question marks with regard to such questions as how much will reach the Pacific coast and when; other outstanding issues include i) When will work begin on the branch line route from Skovorodino to Daqing?; ii) What will be done about the specific method of taking in foreign investment?; iii) What about the development of new oilfields in Eastern Siberia and the Far Eastern region?; and iv) What will be done about the lack of clarity with regard to the prospects for procuring funds?



Economic Research Institute for Northeast Asia (ERINA), 2005

On the other hand, with regard to natural gas, the General Production, Transport and Supply Plan for Natural Gas in Eastern Siberia and the Far Eastern Region, which was led by the state-owned company Gazprom, will apparently be published before long. However, as far as such issues as investment and technology transfer as part of Japan-Russia energy cooperation are concerned, it is likely that it will be necessary to resolve similar problems to those arising from the crude oil pipeline.

Although the opinions expressed by participants in this Forum are their personal opinions and not those of the institutions to which they are affiliated, we were able to achieve an honest, lively discussion of the issues. The discussion did not merely focus on issues concerning energy cooperation from the viewpoint of business, but also covered a wide range of topics, including improvements to political frameworks and energy-conserving technology aimed at environmental conservation.

In editing this report, we have had to omit some parts of the presentations, due to space constraints, but I hope that this publication will be of assistance in providing an overview of the prospects and potential for Russo-Japanese energy cooperation.

Finally, I would like to express my deepest gratitude to all the participants for taking time out of their busy schedules to come all the way to Niigata, as well as to all the organizations that supported this Forum.

Susumu Yoshida
Chairman of the Board of Trustees and Director-General, ERINA
December 2005

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Sergei N. Goncharov
Minister Counselor, Russian Embassy in Beijing

I am delighted to have the opportunity to talk to you about Russia's position with regard to multilateral energy cooperation. However, please be aware that these are my own opinions and assessments and do not represent the opinions of the Russian government or the Russian Ministry of Foreign Affairs.

As can be seen from the 9/11 terror attacks and the unstable situation in the Middle East, the countries of the world - particularly those in Northeast Asia - have a considerable interest in seeking new resources. Another development that has fundamentally altered global energy markets is the remarkable economic growth being experienced by China and Russia. Many experts forecast that industrial production in these two countries, which account for 37% of the world's population, will reach the same level as production in the US, the EU and Japan in the near future. Major industrialized countries must be aware that the prices of oil and gas in international markets are going to remain high. The Russian government can probably expect the market prices of oil and gas to be maintained at a high level over a relatively long time to come, so it will be able to earn income from increasing exports of oil, gas and other natural resources. The development of the energy industry in the future will promote the upgrading of transport infrastructure, increased exports and national unity, including security; in other words, it will facilitate the achievement of a balance between politics and the economy. While promoting international cooperation, including in energy mega-projects, Russia is increasingly directing its policy focus towards domestic development needs. To put it another way, it must efficiently use the income from oil and gas to develop the national economy.

However, I do not think that the prospects for Russia are necessarily very bright. We must learn from our past mistakes. For example, after the 1973 oil shock, i.e. just at the time that extraction began in the huge oilfields of Western Siberia, vast sums of money were wasted. This is related to the fact that the government was pursuing an unbalanced economic policy due to the arms race with the US and conflict between the Soviet Union and China. We should be able to ensure energy stability if we avoid extremism and promote realistic politics.

Today, the view that only Japan and the US are the only powerful sources of investment in the oil and gas sector is changing. If we are just thinking in terms of money, both India and China are showing a willingness to pay as much money as is needed in order to secure a stable supply of oil and gas. However, Russia's long-term energy strategy should reject narrow geopolitical viewpoints and promote diversification and the influx of cutting-edge technology. Russia maintains good relations with China and India, but the key factor in this is demand for energy resources. In this sense, there are those in Russia who feel that it would be acceptable to shift the emphasis towards China and India and ignore all other partners. In theoretical terms, it is no mystery that such opinions exist. However, this option is definitely not the optimal one and contains negative elements for the country. Russia will not agree to export its natural resources exclusively to a single destination, whether this is China or India. The policy that Russia has consistently adopted is that it will definitely not remove any of the countries of

Northeast Asia from its cooperative framework. If it were to do so, one could not rule out the possibility that a situation that threatened the safety of oil transport lines might arise, such as demarcation problems or military tensions. It is not the case that Russia merely needs money from China, India or any other country; it also requires technology from countries such as Japan, the ROK and the US, and it is clear that it will be unable to develop its resource industries without this. Consequently, Russia is prepared to deepen its relationships with all advanced industrialized nations, if they are willing to do so. In other words, multilateral cooperation to build energy relationships is necessary.

In Northeast Asia, there are fears of a conflict of political opinions over such matters as the northern part of the Korean Peninsula and the Taiwan Strait, but on the other hand, we are beginning to see the possibility of promoting energy dialogue. In addition to energy dialogues such as the existing ASEAN+3 framework, multilateral energy cooperation in Northeast Asia could become one option. Almost all the countries in this region are oil and gas consumers and problems relating to stockpiles of energy resources, the stabilization of prices, and energy supply are being discussed. However, in oil-producing countries, there are those who raise concerns about such groups of consumers, fearing that the consumer countries are seeking to use the profits of the supplier country for their own benefit. Moreover, within such consumer frameworks, it is not unusual for there to be little integration with regard to the problems of energy use and how to create energy sources, and few discussions with regard to access to the production area. Although they advocate cooperation in their political statements and other pronouncements, when it actually comes to specific projects, they engage in fierce rivalry. This acute, cutthroat competition is reminiscent of the zero-sum game. When contemplating the aforementioned issues, the interests of the producer are not necessarily taken into consideration. With regard to technology transfer and environmental problems, such as what route an oil pipeline should take, for instance, consumer countries sometimes even give instructions that completely ignore the opinions of the producer country.

When looking at schemes for multilateral cooperation in Northeast Asia, there is a tendency to ignore markets in the US and India. However, from the perspective of a country exporting oil resources, broader, multifaceted cooperation is necessary. It is my personal view that, in promoting multilateral cooperation in Northeast Asia, Russia is prepared to participate in all talks based on the principle of equal mutual benefit. This means participating in all East Asian multilateral cooperation systems. Moreover, the US and India should be included in this process and, taking into consideration energy demand, we should probably also think about the potential of Central Asia. Furthermore, it is necessary to satisfy producers with regard to such matters as technology transfer, environmental protection, and the processing of raw materials in the region in which they originate. This is the case not only in the oil and gas sector, but also in a wide range of areas, such as electric power and gas liquefaction projects. Moreover, it is necessary to strive to resolve regional conflicts, in order to promote multilateral cooperation. The resolution of conflicting or contradictory opinions should be made a condition of energy cooperation and energy cooperation; regional conflicts should not be used as a tool for energy cooperation.

Alexei M. Mastepanov

Advisor to the Deputy Chairman of the Board of Directors, Gazprom

An energy strategy to 2020, which deals with the future of economic development and energy in Russia over the next ten years, has been formulated. This has been approved by the Russian Federation and it is a basic document presenting the priority areas for the country's long-term energy strategy.

This strategy first of all aims to halve the basic unit price of energy in GDP. Domestic restructuring - *perestroika* - aimed at improving the economy should be implemented by 2020, with the main growth taking place not only in the field of energy, but also in knowledge-intensive, high-tech fields; in addition, dynamic energy conservation policies are required. GDP is projected to increase by 3.3 times, but the rise in domestic energy consumption should be checked at 40%, with the basic unit price of energy in GDP being curbed at 42-56% of the level in 2000 (Figure 1).

The gas industry has not only come to supply half of the energy consumed domestically, but also generates 20% of the country's foreign currency earnings and 25% of its annual revenue. Furthermore, natural gas will undoubtedly continue to be Russia's main export product during the period to 2020. The quantity of natural gas exported in 2020 is projected to be 236-245 billion cubic meters (BCM).

Russia has the world's largest supply of gas. At present, more than 34% of total proven reserves worldwide are located in Russia. Moreover, if both continental and marine reserves are included, initially available reserves total 236 trillion cubic meters (TCM), of which the cumulative production volume is 13.5 TCM, proven reserves amount to 48 TCM and possible reserves total 170 TCM, so there is ample scope to continue using gas in the future. Proven gas reserves are mainly concentrated in Western Siberia, while possible reserves are spread across Western Siberia, Eastern Siberia, Far Eastern Russia and the continental shelves of the Sea of Okhotsk and the Barents Sea (Figure 2).

Figure 1

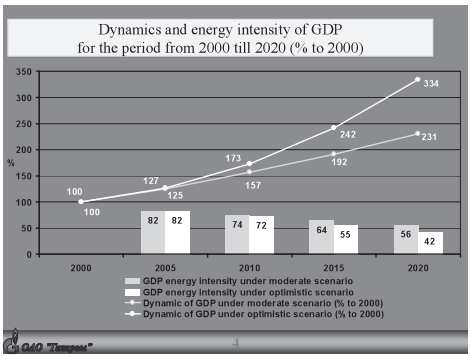


Figure 2

Russia's energy strategy sets out two main tasks for the gas industry: providing a stable supply of gas for the populace and developing the gas industry. In order to achieve these targets, there are plans to promote initiatives in the following three areas: i) creating the conditions for gas production by upgrading subsoil resource usage systems and enhancing the tax system, and developing new small- and medium-scale gas fields in order to stimulate production; ii) providing positive advice to companies with a connection to the gas market; and iii) forming and developing a modern gas market.

The quantity of natural gas produced in Russia has the potential to reach 710-730 BCM by 2020, according to the optimistic scenario. Gazprom plays a central role in gas production and is maintaining stable growth. Gas production by companies involved in the industry is increasing annually and the volume of production reached 545 BCM in 2004. Moreover, as a result of a decision taken by the board of directors in 2003, there are plans to increase the volume of production to up to 580-590 BCM by 2020.

There are three tasks in the energy strategy for the gas industry in Eastern Russia: developing the industry at a rapid tempo, developing and expanding new production areas, and expanding into Asia-Pacific markets. If the conditions can be put in place, it will be possible to increase annual production in Eastern Siberia and Far Eastern Russia to 50 BCM by 2010 and 110 BCM by 2020 (Figure 3). In this region, it is necessary for oil and gas resources to be developed with the active participation of the state and the top management of Gazprom has made approaches to the government to this end.

The Russian government instructed the Ministry of Energy and Gazprom to formulate an environmental improvement plan relating to the extraction, transport and supply of gas in Eastern Siberia and Far Eastern Russia, as well as its export to the countries of the Asia-Pacific region; this plan was intended to set forth the development strategy for the gas industry in Russia's eastern regions. The plan was approved at a Cabinet meeting in March 2003 and looks likely to be formally adopted in the first half of this year; the phased development of an integrated regional gas production and transport system in Eastern Russia (producing around 100 BCM annually; total cost around $40-45 billion) is the long-term objective.

The development of oil- and natural gas-producing areas must be focused on large-scale regional centers, in order to ensure the safety of gas extraction and transport. At present, consideration is being given to a number of candidate sites that could become such a hub. These include Kovykta in Irkutsk Oblast, Chayanda in the Sakha Republic, Sobinsko-Payginskoe and Yurubcheno-Tokhomskoe in Krasnoyarsk Krai, and the Sakhalin continental shelf.

These areas have many characteristics in common. For example, in the case of the production areas of Eastern Siberia and the Sakha Republic (Yakutia), the natural gas in both those areas has a high helium content and also contains a lot of gas condensate. In addition to the existence of the infrastructure required in order to construct a large-scale export-oriented gas chemical plant, consideration must also be given to constructing a specialist plant, as helium can be used as well. By adopting this complex-type approach, we believe that Russia can make a significant contribution not only to the energy security of neighboring countries, but also to that of Asia as a whole. It is thought that Japanese companies, which have cutting-edge technology, have a major role to play in achieving this goal.

Our basic stance with regard to the identification of gas transport routes in Eastern Russia is one of ensuring that we can, first and foremost, maintain a stable supply of gas to the whole of Russia. In addition, given that demand for Russian-produced gas is increasing steadily in the Asia-Pacific region, we must also be able to secure advantageous sales terms. Based on this stance, Gazprom has worked out a phased development concept for gas delivery routes in Eastern Russia (Figure 4). This will connect major production areas in Eastern Siberia and Far Eastern Russia, and link these to the national network, thereby putting us a position to provide not only the citizens of Eastern Russia, but also neighboring countries in Northeast Asia with a stable supply of gas. The concept of the concrete expansion of a supply network in the future will be determined while also observing market trends. Of course, in order to implement this plan, a considerable amount of investment will be required. According to preliminary calculations, the development of the mineral deposits, the construction of a trunk gas pipeline and the development of infrastructure will require $40-45 billion, while the construction of a gas processing plant and a gas chemical plant will require $10-15 billion. The financial muscle of investors, governments and financial institutions, as well, of course, as that of the state, will have to be utilized.

In order to reduce the risks involved in implementing this plan, the following will be required: i) comprehensive measures relating to the development of mineral deposits and the formation of a gas transport system; ii) the coordination of Russia's eastern development plan with the plans of the various countries of Northeast Asia; and iii) the conclusion of inter-governmental agreements and the implementation of gas exports based on long-term contracts. Cooperation between the Asia-Pacific region and neighboring countries has a particularly great significance.

Figure 3

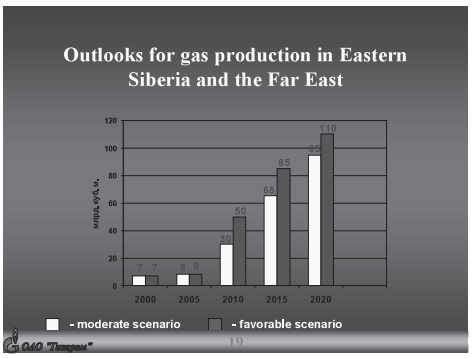
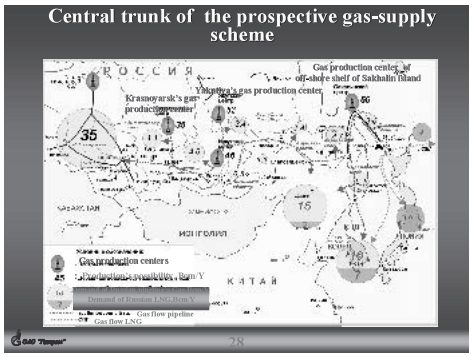


Figure 4



Takehiro Togo
Senior Advisor, GSSI / Mitsui Co.

The Asia-Pacific region, particularly Japan, the ROK, China and the US, is experiencing a steady increase in natural gas demand. Russia, the world's largest gas supplier, is aware of this fact and is trying to meet this demand by means of a plan for the period up to 2020. In addition, the supply of natural gas from the Sakhalin I and II projects will begin soon, so countries on the demand side, such as Japan, China and the ROK, are paying close attention to the fact that natural gas is a lucrative resource. Given this situation, it would be the most natural thing in the world for Russia and Asia-Pacific countries, such as Japan, the ROK, China and the US, to construct a cooperative framework relating to the supply of natural gas from Far Eastern Russia, and it is incontrovertible that this would have a great economic and political significance that would conform with historical trends. On the other hand, a great deal of time and vast amounts of money would be required in order to build such a cooperative framework and, in addition to a comprehensive regional cooperative framework that included not only natural gas, but also such matters as energy issues in general, trade and investment, and the environment, the development of international political cooperation that includes security issues is essential. In particular, in the Far East, which for a long time was divided because of the Cold War and which still has not cast off the shadow of this, even today, it will be necessary to resolve many problems in constructing a stable, long-lasting international cooperative framework.

The usage rate of natural gas in Northeast Asia is still at a low level. Whereas the OECD average in 1990 was 20%, it was 13% in Japan, 8% in the ROK and 1% in China. In all these countries, an expansion in natural gas demand is anticipated, for such reasons as lowering their dependence on the Middle East for oil, as well as out of consideration for environmental problems. In Japan, the nuclear power generation plan is expected to suffer delays for various reasons, so the government has announced that it plans to increase the share of natural gas in the primary energy supply from the current level of 13% to 20% by 2020. Of the countries in Northeast Asia, the ROK is the one in which preparations to receive natural gas via a pipeline are most advanced and it is striving to secure supplies of natural gas from across the globe. China also plans to increase the share of natural gas in the primary energy supply from the current level of 2.5% to 11-12% by 2010-2015; even if it focuses its efforts on expanding domestic production for the time being, this alone will not be sufficient, so it will be unable to avoid becoming dependent on imports from other countries, including Russia and Central Asia. The US is also seeking to reduce its dependence on the Middle East and make a policy shift towards diversifying its sources of supply, and it has reached an agreement with Russia concerning the intensification of cooperation in the energy field, such as promoting investment aimed at the development and modernization of the oil and natural gas sector in Eastern Siberia and Far Eastern Russia.

An increase in imports of LNG from Russia is anticipated in the future. The Sakhalin I and II projects are both making steady progress and it is envisaged that a total of $15 billion will be invested in Sakhalin I, with a further $10 billion being invested in Sakhalin II. The original concept for Sakhalin I involved building a pipeline via Hokkaido to Honshu, in

order to deliver natural gas, but as no progress has been made in concluding contracts with customers on the Japanese side, discussions with potential customers in China are apparently being conducted at present. Under Sakhalin II, there are plans to lay an 800km pipeline to Southern Sakhalin, equip the 4.8 million ton LNG plant - one of the largest in the world - with two storage tanks, and export the gas as LNG; as of the end of last year, 51% of the construction work had been completed. In addition to eight major customers, including Tokyo Gas, Tokyo Electric Power Company and Kyushu Electric Power Company, a contract for at least 20 years has already been concluded with the Korea Gas Corporation (KOGAS) and the sale of 6.5 million tons (MT), equivalent to 70% of the project's annual output, has already been determined, with shipments due to begin in November 2007.

The Sakhalin development projects are Russia's first involving production sharing agreements (PSAs), LNG exports and offshore development, and there have been many problems along the way, but realizing such gargantuan projects that will be a new bridge for energy supply between Russia and East Asia has great significance. At the same time, the projects are also likely to be a major asset that will revitalize the national as well as local economy, creating long-term employment relating to the projects in Sakhalin, as well as other areas of Russia, assisting in obtaining valuable currency, enhancing infrastructure as a result of industrial development, and securing further domestic sources of energy supply. It is hoped that these projects, which have been realized after overcoming many difficulties, will be able to provide a stable supply of oil and gas to East Asia, primarily Japan. I would like to think that, in order to ensure that this happens, Russia will take adequate steps to put in place the domestic conditions necessary to ensure that operations can continue stably. Natural gas is big business in Russia, accounting for 50% of domestic energy consumption, 20% of foreign currency turnover and 25% of the federal budget. At present, natural gas is mainly produced in the Yamalo-Nenets autonomous district in Western Siberia and I hear that this accounts for 76.3% of total output. The other major production areas are in the Volga and Urals districts in European Russia, the Komi Republic in the north, the Western Caucasus and the Barents Sea; the natural gas from these areas is exported by pipeline.

It is an historical fact that the supply of Russia's natural gas to the countries of Western Europe by means of a pipeline during the Cold War played a major role in the stabilization of political and economic relations between the Soviet Union and these countries. Even today, we can say that it is supporting the economic prosperity of the enlarged EU. In the 20th century, East Asia was the stage for terrible imperialistic wars and the Cold War, and these still cast a dark shadow over the region today. In particular, on the Korean Peninsula, the DPRK's development of nuclear weapons is a problem that has taken on a sense of urgency, not only from the perspective of regional security, but also from that of global security, and efforts to achieve a peaceful solution within the framework of the six-party talks are continuing. The solution of this issue and the establishment of diplomatic relations between the DPRK and Japan, the ROK and the US are essential to the peace and security of this region. Between Japan and Russia there is the outstanding issue of the resolution of the territorial dispute and the conclusion of a peace treaty. In addition to such major political problems, Northeast Asia consists of countries and regions with a mixture of differing political and social systems, and whose development levels differ

enormously; this is the fundamental reason why this region has become estranged from the formation of international cooperation. However, based on the remarkable economic development recently experienced by the ROK, China and Russia, the fact is that mutually dependent relationships are developing at quite a pace. It is becoming clear in Northeast Asia that, amidst this kind of situation, internationally integrated systems and frameworks in many fields, including energy, the environment and transport, are vital.

Recently, private sector discussions have been taking place, concerning the issues of free trade agreements, economic treaties and the Asian Community, and discussions concerning frameworks and formulae for actual international cooperation in the energy sector, particularly the natural gas sector, are becoming a pressing issue.

In light of the fact that Russia has its sights set on the Asia-Pacific region, which needs natural gas, and the fact that it faces the challenge of conserving energy so that it can halve energy intensity by 2020, it is obvious that there is extremely great potential for cooperation between Japan and Russia.

Discussions between Japan and Russia concerning the phased development of the construction of the pipeline from Eastern Siberia to the Pacific coast are already taking place within the framework of the Japan-Russia Inter-Governmental Committee on Trade and the Economy and the Inter-Governmental Expert Council on Pipelines. It is also vital to begin discussing the shape of any cooperative framework relating to natural gas. In seeking to establish the Northeast Asia Subregion in the future, starting with cooperation in the energy sector is a major issue. The fact is that the current EU originally started life as the European Coal and Steel Community, for the joint management of steel and coal by France and Germany. I believe that if, based on relationships of trust, Japan and Russia can take the initiative in activities aimed at the formation of a regional community in the future, they will be able to make a significant contribution to peace and stability in this region. Efforts in the private sector should also be continued and I would like to praise ERINA for its role in this area.

Georgiy A. Karlov

Deputy Governor, Sakhalin Oblast

The resources of the Sakhalin continental shelf are likely to play a major role in the relationship between Russia and the countries of the Asia-Pacific region. For instance, with regard to the relationship with Japan, the volume of trade reached $740 million in 2004. This is equivalent to about 40% of the value of Sakhalin's external trade and about 10% of the volume of foreign trade in Russia as a whole. More than 50% of Sakhalin Oblast's exports are accounted for by the oil and gas industry. As of 2004, the largest destination for oil exports was Japan, with about 76% (i.e. 1.2 MT out of the total export volume of 1.6 MT) of oil exports being shipped to Japan; in addition, China accounted for 11%, the US for 6%, Singapore for 5% and the ROK for 2%. We are delighted that leading Japanese companies are actively participating in the Sakhalin continental shelf

development projects. For example, SODECO has a 30% stake in Sakhalin I, while in Sakhalin II, Mitsui Sakhalin Holdings has a 25% stake, while Mitsui & Co. and Mitsubishi Corporation have 20% stakes.

Under the Sakhalin II project, gas is exported as LNG. In Russia, the world's largest LNG plant is currently under construction near Prigorodnaya. Russian and Japanese companies are jointly striving to realize these projects and, as members of the oil and gas consortium, Nippon Steel Corporation, Sumitomo Corporation, Marubeni and Itochu are providing high-tech equipment and advanced technology to Sakhalin I. In their joint efforts with major Japanese companies, Russian companies are earning a reputation as subcontractors that can complete the work required of them to a very high standard.

CTSD Ltd., which was established by Chiyoda Corporation and Toyo Engineering, is participating in the construction of the natural gas liquefaction plant. The active participation by both Japan and Russia in oil and gas projects suggests that a strategic partnership between Sakhalin Oblast and Japan could be created in the energy sector.

Sakhalin Oblast's policy is as follows. Firstly, cooperation within the frameworks of Sakhalin I and II. Secondly, cooperation in the development of new production areas; exploration and site surveys are already underway at new oil and gas production areas earmarked for the Sakhalin IV, V and VI projects. Thirdly, there is the problem of the effective use of gas in Sakhalin. With regard to the efficient use of gas, a working group consisting of Japanese and Russian experts has begun concrete deliberations and is exploring the possibility of switching the fuel used locally to generate power to gas and constructing an export-oriented gas chemical plant. Fourthly, promoting the development of industrial export infrastructure within the framework of the oil and gas projects. For example, in the development of infrastructure within the framework of the Sakhalin I and II projects, the development of incidental infrastructure facilities would be desirable, including the modernization of roads, railways, communications infrastructure and medical facilities. Other improvements required include the modernization of port facilities, the construction of a new airport in Yuzhno-Sakhalinsk, and the development of a world-class road network.

The government of Sakhalin Oblast believes that the region has a bright future and has high hopes of Japan as a good partner in the energy sector.

Viktor A. Snegir

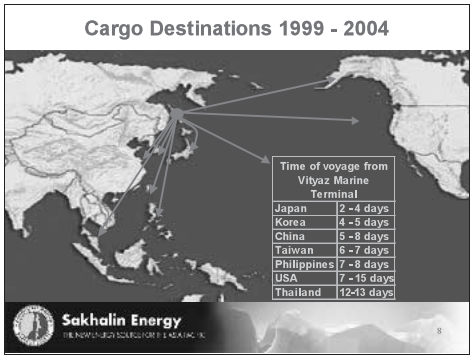
General Manager (Commercial), Sakhalin Energy Investment Company Ltd.

Firstly, I would like to talk about Sakhalin II and Russia's role as a new strategic supplier of energy resources in the Asia-Pacific region. At the APEC forum held in October 2003 in Bangkok, President Putin said that, "Russia is prepared to make a fresh contribution to creating a new energy configuration in the Asia-Pacific region." For example, the construction of one of the world's largest LNG plants is planned in Sakhalin. Sakhalin Energy consists of Royal Dutch Shell, Mitsui & Co. and Mitsubishi Corporation, and is

focused on the Piltun-Astokhskoe and Lunskoe gas fields. Reserves of oil are estimated at 150 MT and reserves of gas at 50 BCM. However, only 9% of total reserves are being developed. The first stage of development in the Sakhalin II project began in 1999, with oil production taking place at the Vityaz complex on a seasonal basis. Over the last six years, 60 MT of oil have been produced and exported to such countries as the ROK, Japan, China, Taiwan, the Philippines and the US (Alaska and Hawaii). Exports to Thailand also restarted in 2004. Until 2002, the ROK was the main buyer, but Japan is now gradually overtaking it. In November 2004, it was decided to supply oil to Tohoku Electric Power Co. in Niigata.

Figure 1 shows the delivery time required for shipments from Sakhalin to various regions.

Figure 1



Under the Sakhalin II project, oil, gas and gas condensate will be transported from the two offshore platforms (Piltun-Astokhskoe and Lunskoe) to Aniva Bay, located to the south of Sakhalin. There is an LNG plant in Aniva Bay and LNG will be transported from there to the export terminal. There will be a pipeline with a total length of 800km running from the north to the south of Sakhalin. The onshore part of the pipeline runs across mountainous areas, lakes and around 1,200 rivers. The welding of 500km of this pipeline has already been completed.

Progress in concluding LNG delivery contracts with countries other than our immediate neighbors has also been made. In October 2004, Sakhalin Energy and Shell Eastern Trading signed a contract in the US concerning the delivery of LNG to the Costa Azul terminal on the west coast of Mexico for 20 years, starting in 2007/8.

In January 2005, we signed a legally binding Heads of Agreement contract with KOGAS.

There have also been diverse developments relating to Japan; we are planning a variety of joint projects in the field of transport methods, i.e. tankers. In November 2004, we signed a ship charter contract for three new tankers with the Russian and Japanese marine transport consortium.

The reasons why the gas has to be exported as LNG include the fact that it permits speedy access to Asia-Pacific markets, allows several markets to be accessed

simultaneously and facilitates the diversification of supply sources. Furthermore, important factors include not only the growing demand for LNG in the Asia-Pacific region, but also the fact that transactions between suppliers and buyers are relatively simple, as intergovernmental agreements are not required, unlike in the case of pipeline projects.

Koichiro Ebihara

Department Chief, Mitsui O.S.K. Lines

Mitsui O.S.K. Lines probably has the best record in the world at present in the transport of LNG, and can be described as the industry giant with regard to resources and energy in general.

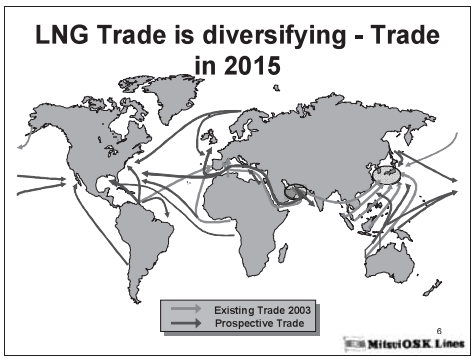
The biggest importer of LNG is Japan, but Taiwan and the ROK began importing it in the 1990s and import destinations have recently expanded to include the US, China and even India. Worldwide LNG demand in 2004 was 135 MT, and the typical scenario suggests that this may well increase to around 280 MT over the next ten years to 2015. Under this scenario, the rate of increase is forecast to be 7%, but if this figure were higher, demand could reach almost 400 MT. Thinking about the situation in regional terms, the main increase in future demand is likely to emerge from major western nations, and the US is envisaged to be a significant factor. Furthermore, once demand emerges in China and India, both of which have large populations, it is likely to increase at an extremely rapid pace. Moreover, with regard to the production side responding to this, a very large increase in production is planned in the Middle East, particularly Qatar, while at the same time, new production plans are also underway in Norway, Africa and South America. In fact, it is common knowledge that production is growing steadily in countries that have already begun to produce it.

So how many LNG tankers will be required amidst the aforementioned situation? As of 2004, around 170 LNG tankers were operating. Around 100 more vessels were in the process of being built or had been ordered. Vessel demand is predicted to rise by 7% to around 280 by 2010 under the basic scenario, increasing to 350 by 2015. This increase in demand is likely to take place against the backdrop of diversification in exporting and importing countries. In 2003, LNG trade was conducted on comparatively limited shipping routes (Figure 1). An expansion in routes is expected by 2015, through the addition of those marked in red, and shipping routes are likely to form a highly diversified network (Figure 2).

The number of LNG tankers has been undergoing a steady increase over the last 30 years or so. In response to the current rapid expansion in demand, tanker construction is booming. Figure 3 shows the estimated number of vessels required for each of the various LNG projects currently underway; it is thought that demand for around 160 new tankers could emerge overall from these projects.

Figure 1

Figure 2



Originally, LNG tankers were built in Europe, but construction is now concentrated in the ROK and Japan. Recently, construction has also begun in China. However, it is not the case that the shipyards building LNG tankers build nothing but such tankers. Various large-scale vessels are constructed in parallel, in response to orders, depending on the overall marine transport situation. In the shipbuilding sector, the price of LNG tankers has been rising rapidly for the last two years (Figure 4). This is not merely due to strong demand for LNG tankers. There is a situation in which the scale of trade has expanded rapidly, so demand for the container ships used to transport manufactured products, crude oil tankers used in the transport of energy resources, and various types of large bulk carrier ships is increasing sharply at the same time. As a result, the price not only of LNG tankers, but also of all other ships is rising rapidly. In addition to this market price formation on the demand side, the market price of aluminum and non-ferrous metals, including steel, is rising rapidly across the globe and so the price of vessels is subject to strong upward pressure in terms of production costs, due to the increase in the price of such materials.

Figure 3

Possible requirement of LNG tankers up to 2009 for new or expansion projects

Project	Commence	Capacity (mmpta)	Required Vessel
Egypt	2006	12.4	6
Trinidad	2006	10.4	6
Rasgas II train 5	2006	5.0	12
Oman	2006	3.3	4
Snowy.it	2007	4.2	4
Algeria	2007	4.0	4
Sakhalin II	2007	9.6	6
Australia (NWS)	2008	4.2	4
Tangguh	2008	6.0	7
QatarGas II	2008	16.0	20
Rasgas II train 6/7	2008	15.6	25
Nigeria (Brass River)	2009	5.0	6
Iran	2009	18.8	25
QatarGas III	2009	7.8	12
Gorgon LNG	2009	12.0	10
Yemen	2009	6.6	6
Total	-	140.9	157

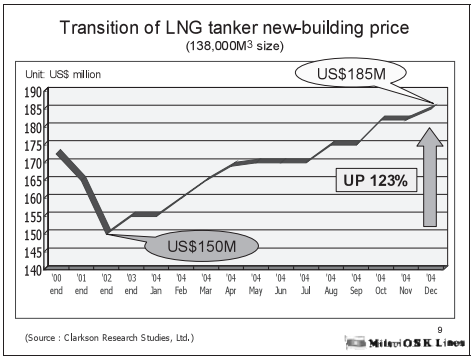
*Construction has not yet started

Source: MOL

8

MitsuiOSK Lines

Figure 4



It is thought that the order books of the world's leading shipbuilders are full until 2008. No matter what type of ship one would like, whenever one initiates sales talks concerning

the construction of a new ship, one is told that delivery will be in 2009, or even later, in some cases. LNG tankers are relatively expensive and shipbuilders tend to try to prioritize such orders, but demand for all types of ship, including container ships, is extremely strong and it is now difficult to ensure an early delivery.

Of the total global share, LNG transport is continuing to increase as a result of the growth in the number of new importing and producing countries, in addition to the increase in consumption in existing consumer countries. In parallel with this, along with latent demand with regard to the expansion in marine trade, economic growth resulting from globalization is leading to an overall global shortage of shipbuilding capacity. Due to growing demand and rising costs, the price of ships is increasing, but countries that already import LNG have an advantage in that they can use their existing import facilities.

Even now, long-term fixed contracts, which treat a single production plant and a single importing country as a set, are the mainstream in international marine trade in natural gas, but trends that could be described as commercialization are gradually taking root. As LNG tankers make it easier to respond to the trend of commercialization and are a flexible system for ship movements, demand for LNG and LNG tankers is likely to increase in the future.

Yuriy V. Schukin

Director, Oil and Gas Institute, Rosneft-Sakhalinmorneftegas

Production is actually taking place under the Sakhalin I and II projects, but Sakhalin is also home to gas and oil fields that will be developed under the Sakhalin III, IV, V and VI projects.

Sakhalin I focuses on the three oil and gas condensate fields of Chayvo, Odoptu and Arkutun-Daginskoye; total reserves of crude oil are 350 MT, while those of gas total 485 BCM (Figure 1). Construction of a pipeline and terminal is progressing on the bay at De Kastri. With regard to Chayvo, it is thought that exports will be able to commence in the third quarter of 2005 and there are plans to use the terminal in Khabarovsk Krai.

Mr. Snegir has already provided a comprehensive overview of Sakhalin II, so I will move on to the other projects, but before doing so, I would like to add that Sakhalin II is doing extremely well.

Sakhalin III focuses on the licensed concessions of East Odoptu, Ayashsky, Veninsky and Kirinsky (Figure 2). Rosneft is conducting mineral exploration in the Veninsky concession. Moreover, a new round of open bidding in the Sakhalin III project is expected to be announced.

Sakhalin IV focuses on the licensed concessions of East Shmidt and West Shmidt, held by Rosneft, which is conducting mineral exploration in partnership with BP. Seismic surveys have been carried out, leading to the discovery of 24 promising faults, and figures for oil and gas reserves have already emerged (Figure 3).

Sakhalin V consists of the Teni, North Odoptu, East Kaiganskaya, North Kaiganskaya

and South Kaiganskaya fields (Figure 4). These are collectively known as the Kaigansko-Vasyukansky block and have great potential.

Figure 1

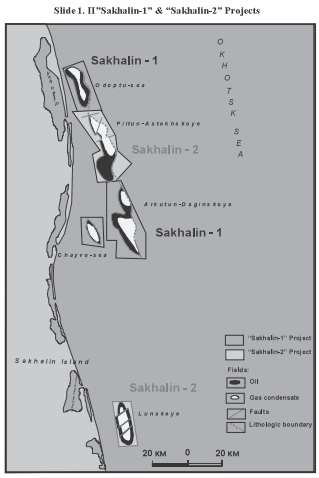


Figure 2

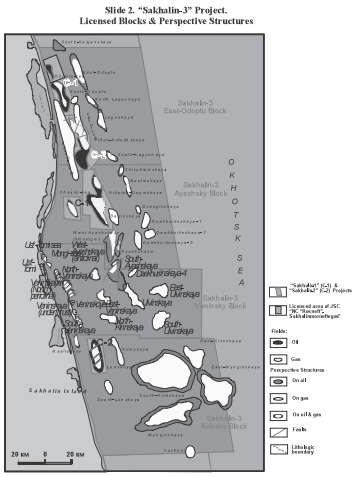


Figure 3

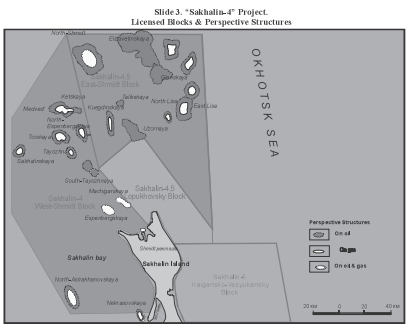
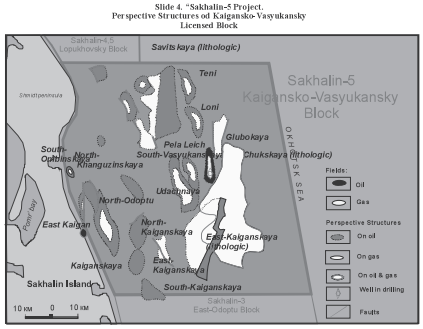


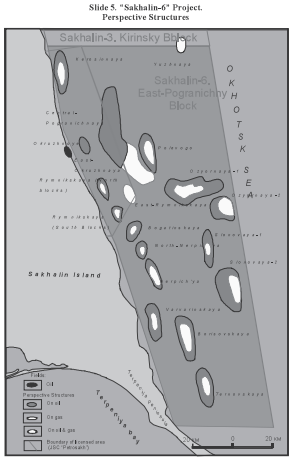
Figure 4



Mineral exploration work for the Sakhalin V project will be carried out later on. The operator is a joint venture involving Rosneft and BP. Exploratory drilling first began in July 2004 and a well was drilled to 3,570m. No experiments were conducted, due to poor weather, but signs of gas and oil were found at the depths of 2,400m and 3,400m, proving that there are massive reserves. According to the various analyses already carried out, oil reserves are expected to total 35 MT, while gas reserves should reach 45-50 BCM.

With regard to Sakhalin VI, Petrosakh has already begun drilling in the Okruzhnoye oil field (Figure 5).

Figure 5



Neil Beveridge

Marketing Director, Gas, Power & Upstream, TNK-BP

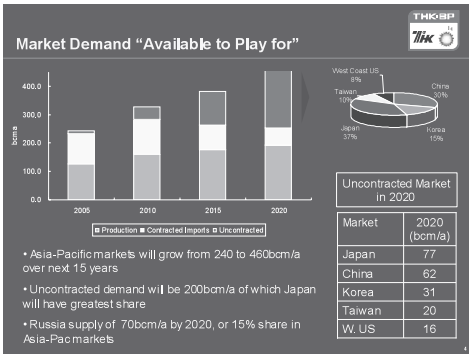
Russia has the extremely significant advantage of having a central location, positioned close to both Asia and Europe. This is symbolized by Russia's national emblem, a two-headed eagle looking to both the east and the west. Although it looks in both directions, it is a historical fact that Russia has, until now, mainly looked to the west. With regard to gas as well, a route to Western Europe was created first, as was a pipeline in the same direction. Using this pipeline, Russia has delivered 630 BCM of gas to Europe annually over the last 30 years. However, as European countries are also seeking to diversify their imports of oil and gas resources, so it looks as though Russia will be unable to expect the European market to expand in the future.

In contrast, Northeast Asia has imported gas in the form of LNG, without the need to use a pipeline. The LNG market is growing and Northeast Asia has great significance as a market with significant potential. Preliminary calculations by TNK-BP suggest that it will be possible to export 70 BCM of gas from Russia by 2020; in other words, this is how great the potential is.

There are three important issues here. The first is the development of gas and upgrading of infrastructure in Far Eastern Russia and Eastern Siberia. The second is the gauging and development of the market in Northeast Asia, and the third is seeing supplies to Europe as one variation arising from diversification. At present, gas consumption in Asia is believed to be around 260 BCM, but for the last few decades, the Northeast Asian market has been growing at a rate of 5% annually and is perceived as an extremely promising market that is likely to grow at an average of 2.5% annually in the future. Markets in every country are showing an upward trend, but China is the market

that we can least afford to ignore. China's energy consumption is growing steadily and environmental problems require a shift towards cleaner energy. In addition, from the perspective of transport, a fuel that is not heavy is required. Japan consumes a considerable amount, but despite this high consumption, its figures are expected to decline somewhat, unlike China, due to the expiry of existing contract periods (Figure 1).

Figure 1



In my view, Russia should turn towards Asia, more specifically China, the ROK and Japan. The gas fields of Sakhalin and Eastern Siberia are likely to be the principal sources of supply. Sakhalin apparently has the potential to supply 50 BCM, while Eastern Siberia is said to have more, possibly as much as 60 BCM. It is estimated that these regions will be able to reach a production volume of 100 BCM by 2020; in other words, the amount provided for export is likely to be in excess of 100 BCM. However, for Russia, the number one priority is supplying this gas to domestic markets, namely the local markets in the Far East and Eastern Siberia.

With regard to Sakhalin, progress is being made with construction that will facilitate the export of gas as LNG, but it is going to become important to promote the pipeline project at the same time.

With regard to Eastern Siberia, the large project focusing on the extension of the pipeline to China and the ROK is attracting attention. In extending this pipeline, four factors will be important: managing the resource base, improving infrastructure and transport, developing domestic and foreign markets, and achieving a balance between domestic and foreign markets. The amount of investment required in such a project has been calculated to be $50 billion, which Russia certainly could not provide single-handedly, so cooperative efforts with foreign partners and private sector companies will become necessary. In light of its geopolitical importance, it is vital that such a large-scale project be implemented not only by private sector companies, but also by governments in this region working in alliance with the Russian government, and joint endeavors in partnership with local governments will also be crucial.

Far Eastern Russia and Eastern Siberia have abundant resources and are likely to become a major powerhouse that boosts Russia's domestic economy dramatically. Moreover, Russia's strategic program aimed at increasing exports to 100 BCM is closely

connected to the upgrading of infrastructure in Eastern Siberia and Sakhalin, as well as the development of the local economy in those areas. In neither of these cooperative projects is the implementation of the project itself the final goal; what is important is how the project can be linked to the development of the regional economy and Russia's strategy on resources and energy. Furthermore, its market strategy *vis-à-vis* countries such as Japan, China and the ROK will be critical, as will its marketing research and market development of Asia-Pacific countries, including the US. Constructing a pipeline like the one that has served Europe for the last 30 years and securing export routes will be crucial in Northeast Asia as well.

Kazuaki Hiraishi

Secretary General, Asia Pipeline Research Society of Japan [1]

We are now steadily moving from the stage of discussing concepts to the era of concrete projects. The Northeast Asia Gas and Pipeline Forum (NAGPF) is a forum created by NPOs from five Northeast Asian countries, which conducts research activities and holds international conferences. In Russia, an NPO centered on the Russian Academy of Sciences was formed, chaired by Dr. Boris Saneev (Deputy Director, Energy Systems Institute, Siberian Branch of the Russian Academy of Sciences), who also participates in our activities. In addition, the main bodies involved in the NAGPF are the NPO created by CNPC of China, KOGAS of the ROK, the Petroleum Authority of Mongolia (PAM), and the Asian Pipeline Research Society of Japan.

We have held eight international conferences since 1995; ten years ago, discussions about natural gas use and the construction of a natural gas pipeline in Northeast Asia focused first and foremost on necessity. At that time, the issue was promoting recognition that they were actually necessary. However, by around 2000, discussions began to focus on concepts and material began to be assembled. It was during the 2000 conference in Irkutsk that the concept of a pipeline for the whole of Northeast Asia was drawn up to some extent. The concept was put together with the agreement of the NPOs from the five countries. A further five years have now passed and a number of projects are making progress.

For example, gas supply along the 4,000km West-East pipeline running from the Tarim Basin to Shanghai via the Ordos Basin has already begun. The project in Irkutsk has also entered the feasibility study stage and Sakhalin is already underway. Now that such concrete discussions have begun, it is going to become necessary to start examining specific figures. In our forum's activities as well, deliberations that take into account concrete figures for the demand and supply of natural gas and indicate future prospects

[1] Due to time constraints, this report was given during Panel Discussion II. However, in the process of editing this publication, it was recorded in the context appropriate to its content, as part of Panel Discussion I, as originally intended.

are now required.

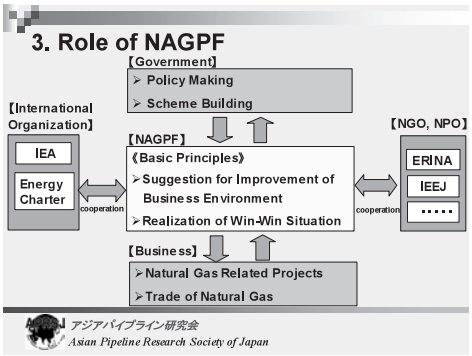
For instance, if the production volume of gas in Eastern Siberia and Far Eastern Russia in 2020 reaches 100 BCM, by subtracting Russian domestic consumption, we can calculate that there would be about 65 BCM available for export. With regard to the question of what share this accounts for in the demand of Northeast Asia as a whole, demand on the part of China, the ROK and Japan is projected to total 340-375 BCM, so 17-20% of this demand could be supplied using gas from Eastern Siberia and the Far Eastern region. Thus, we can see that it is an extremely important supply source.

Although the price relates to business matters, our NPO would also like to hold discussions about a rough guide price for natural gas. Discussions could consist of those involving the players on the supply side and those involving the countries on the demand side. Our forum is characterized by the fact that its membership includes not only China, the ROK and Japan, but also Russia. As there are countries on both the supply and demand sides, discussions from both perspectives could take place.

In conclusion, it would be fair to say that a price gap does exist. China assumes that it will be able to buy gas at the same price as its domestically produced natural gas. Japan and the ROK are seeking the provision of gas at a lower price than LNG. The important thing is to become aware of this price gap through specific figures. If the scale of this gap becomes apparent, we will be able to consider specific measures in accordance with this. Therefore, we are promoting studies aimed at encouraging such deliberations.

I would also like to make a point about moving from partial to total optimization. Business is fundamentally the pursuit of profit; the price is set at the optimum level appropriate to individual conditions and business progresses. However, from the perspective of energy security in Northeast Asia as a whole, it will ultimately be necessary to shift from partial to total optimization. In doing this, it is governments that will take on the main role, but our NPO will also have a part to play in linking governments with the actual world of business (Figure 1). It will be necessary to make approaches to governments regarding specific measures to upgrade the business environment. Furthermore, proposals for creating a win-win situation will also be required.

Figure 1



Susumu Abe
Acting President, Asia Pipeline Research Society of Japan
Member of the Board of Directors, ERINA

Energy and environmental issues, such as the recent worldwide escalation in crude oil prices and the entry into force of the Kyoto Protocol on 16th February this year, have been attracting a great deal of interest. Japan's energy self-sufficiency rate is 4%, and still only reaches 20% even if nuclear power is included. On the other hand, Russia, which has an energy self-sufficiency rate of 160%, is aiming to develop resources in Eastern Siberia and the Far Eastern region and cultivate markets in Northeast Asia. These two countries are in stark contrast to each other when it comes to the problem of energy and resources, but talks between them would be of huge significance in the sense that these would promote understanding of each other's positions in terms of a perspective that differs from diplomatic discussions between them; this understanding could then lead to activities in the future.

As you are doubtless well aware, the energy situation in Northeast Asia is such that energy demand in China in particular is growing rapidly. Imports from outside the region are also on the rise. Japan is dependent on the Middle East for more than 76% of its oil demand, while the figures for the ROK and China are 76% and 46%, respectively. Conversely, if we view this from the perspective of the Middle East, half of its energy exports are destined for Northeast Asia and this figure will doubtless rise in the future. In other words, regional disputes and risks relating to transport routes are a major problem with regard to the stability of Northeast Asia's energy supply. China mainly uses coal, while the main form of fuel in Japan and the ROK is oil; this excessive reliance also gives rise to the problem of CO_2 emissions.

China, Japan and the ROK together account for about 20% of global energy demand (Figure 1). Figure 2 shows the fuel composition of energy consumption worldwide and in relevant countries as of 2003. Oil accounts for just under 40% of total primary energy consumption worldwide, with gas and coal each accounting for 25%, and nuclear, hydroelectric power and other energy sources accounting for about 10%. In contrast, gas accounts for 54% of the primary energy supply in Russia, while oil accounts for about 50% in the ROK and Japan, and coal accounts for around 70% in China.

Since 1993, China has been an oil-importing country. Its oil consumption is in excess of that of Japan and is projected to quintuple by 2030, reaching the current consumption level of the US. According to information provided by one person involved in China's energy development strategy, China is aiming to diversify the sources of its energy supply and, reflecting the experiences of industrialized countries, it is trying to avoid becoming excessively dependent on oil. While coal is the main form of energy in China, due in part to the fact that it has significant coal reserves, the country is seeking to increase the share of natural gas from the current figure of 2.7% to 10-11% by 2020. In addition, I have heard that it is aiming to reduce the share of coal to 50-52% by 2020, with the remaining 50% or so being covered by oil, natural gas, and hydroelectric and nuclear power.

Figure 1

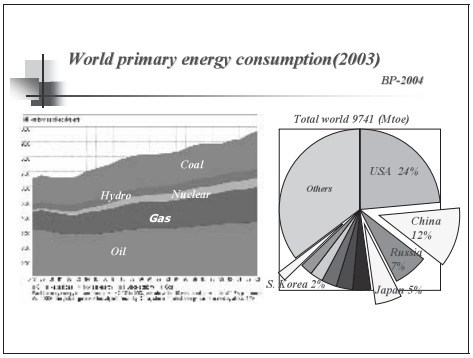
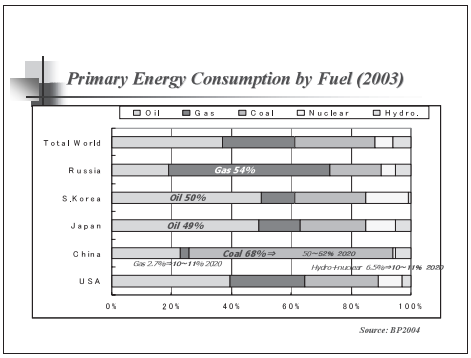


Figure 2



The IEA forecasts that world energy demand will increase 60% on the current level by 2030, with the steepest rise being seen in natural gas. The US was responsible for the greatest volume of CO_2 emissions in 2002 resulting from energy consumption, with the combined volume of such emissions from China, Japan and the ROK accounting for more than 20% of the global total (Figure 3). Compared with 1990, which was taken as the base year in the Kyoto Protocol, emissions are likely to double by 2030. The share accounted for by developing countries, which stood at 30% in 1990, is projected to rise to about half of total global emissions by 2030. Figure 4 is a structural comparison of sources of CO_2 emissions, and shows that the share accounted for by the electricity generation sector is extremely high. Amidst this kind of situation, the energy policies of the countries of Northeast Asia are heading in broadly the same direction.

Figure 3

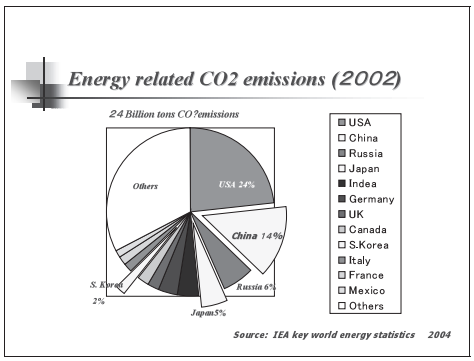
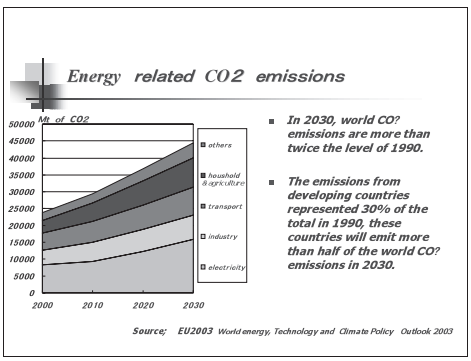


Figure 4



The fundamental principle of Japan's energy policy involves securing a stable energy supply, ensuring environmental compatibility and applying market principles after taking these factors into consideration to an adequate degree. In the energy strategy to 2020 published by Russia, which ratified the Kyoto Protocol last year, the key issues are identified as the effective use of resources, contributing to society and the economy,

improving energy efficiency and ensuring environmental compatibility. China's policy focuses on energy security, optimizing the energy mix, improving energy efficiency, ensuring environmental compatibility and developing resources. That of the ROK is oriented towards establishing the foundations of energy supply, ensuring that energy plants are compatible with the environment, liberalizing the energy industry and reducing prices.

The relationship between economic activities, the energy consumption that underpins these, and the CO_2 that is emitted as a result is actually extremely complex, but it can be considered in simplified terms, as shown in Figure 5. This shows three formulae and different expressions are used to describe things that have exactly the same meaning. The volume of CO_2 emissions resulting from economic activities (CO_2 intensity), as shown on the left-hand side, is the quantity of CO_2 generated as a result of the production of $1 of GDP. In order to maintain a sustainable relationship between the economy and the environment, we must aim to reduce CO_2 intensity. To do this, it is vital to make use of clean energy and reduce energy intensity; to put it another way, we must aim to conserve energy and improve energy efficiency.

Another means of summarizing these relationships is shown in Figure 6. In Northeast Asia, activities aimed at achieving the 3Es and creating a win-win situation are possible, and this will undoubtedly assist in the revitalization of the region through mutual complementarities and exchange.

Figure 5

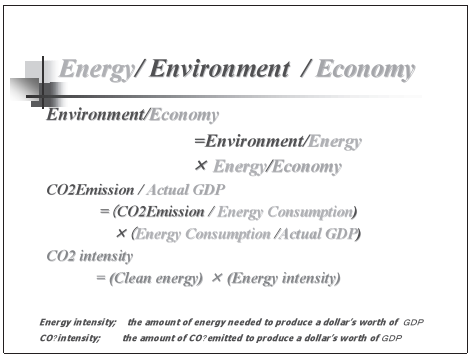


Figure 6

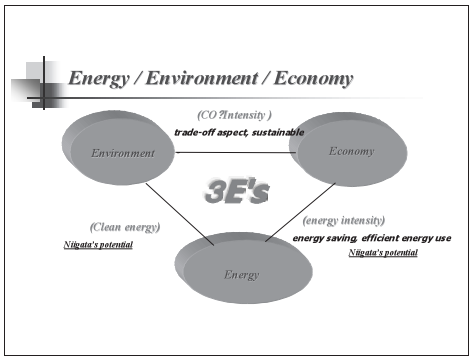


Figure 7 shows the energy intensity of each country in 2001 and the reductions that they are forecast to achieve by 2025. We have already heard that Russia intends to halve its energy intensity by 2020. This is a field in which the efforts that Japan has made hitherto with regard to increasing energy efficiency can be reflected. Moreover, China is aiming to achieve the same level as the US by 2015-2020, and it is thought that it will reach the same level as Japan sometime after 2020.

Figure 8 shows CO_2 generation by fuel in the power generation sector, which has the biggest impact on CO_2 emissions. Coal-fired power generation must be made a priority target for CO_2 countermeasures. Incidentally, there are no coal-fired power stations in

Niigata Prefecture; the main forms of power generation are nuclear power, high-efficiency combined-cycle power generation and hydroelectric power.

Figure 7

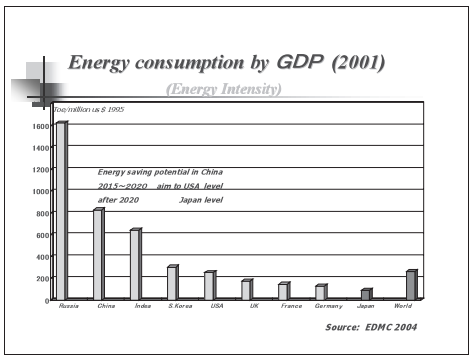


Figure 8

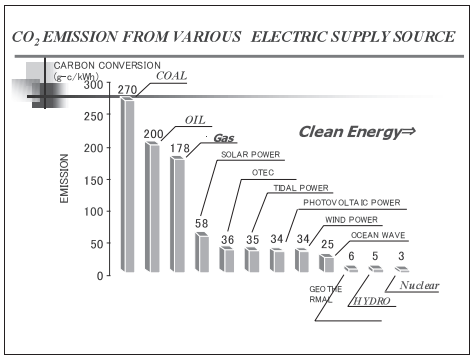


Figure 9 shows the results of Japanese efforts to improve energy intensity figures since 1970. Even before the Kyoto Protocol base year of 1990, Japan was performing well in the areas of increased energy efficiency and energy conservation.

Figure 10 shows the energy efficiency improvements achieved as a result of combined-cycle power generation, which combines natural gas turbines with steam turbines that use the waste heat from these. This form of power generation, which is expected to become the main form of thermal power generation in the future, currently achieves a thermal efficiency level in excess of 50%. There will be a more detailed report on this tomorrow, from Yuki Endo, General Manager of the Tohoku Electric Power Company's Higashi Niigata Thermal Power Station. His company's combined-cycle power station in Niigata is one of the world's most efficient, achieving a temperature of around 1,500℃, and it is currently operating well.

Figure 9

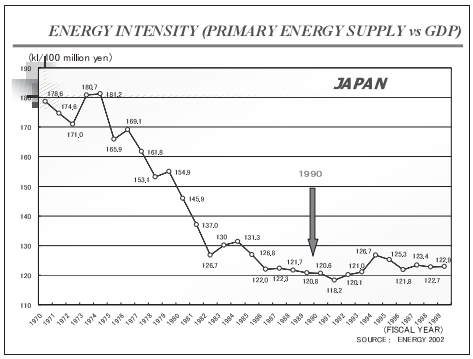
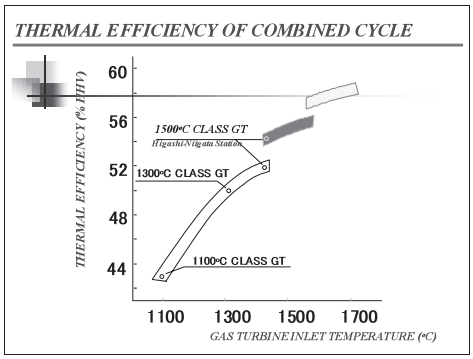


Figure 10



With regard to the necessity and direction of energy cooperation in Northeast Asia, the factors that suggest that the countries of the region are in a position to create a win-win situation include their proximity, their potential complementarities, the compatibility of their energy policies and an atmosphere that has become increasingly conducive to energy cooperation of late. It is difficult for a single country to resolve energy and environmental problems on its own, so regional cooperation is essential. A non-zero-sum or even positive-sum attitude is required, in contrast to the conventional zero-sum game seen hitherto. There is potential for discussion of the roles that each country should play and for us to aim towards the strengthening of collaboration and communication.

Taking the harmonization of the 3Es as the common goal for Northeast Asia, promoting the resolution of this issue would surely lead to regional cooperation. Niigata has great potential to play a major role in activities aimed at promoting cooperation. Firstly, Niigata Prefecture has a strong desire to participate in Northeast Asian exchange, as well as the energy to do so. In addition, it is blessed with geographical conditions that make it suitable to be a hub for cooperation in Northeast Asia. Furthermore, Niigata has occupied a central position in Japan's energy industry for centuries and even now has a diverse stockpile of world-class cutting edge technology. This kind of technological experience and capacity, and the potential to be able to reflect it in measures to improve efficiency with regard to Northeast Asia's 3E target is likely to lead to the revitalization of the region through technological exchange.

Niigata's involvement in the energy sector dates back centuries. From about 660AD, oil produced in the area was presented to the emperor of the time. Niigata Port was one of Japan's five international ports to be opened up in 1868, and the only such port on the Japan Sea, so it has a long history as a hub for international exchange. The gold mines of Sado contributed to Japan's industrial development, and Niigata Prefecture is the birthplace of Japan's oil and natural gas industry. In the 1930s, the prefecture supplied 80% of Japanese demand. Although the quantity produced is now small, the area is still the top production region in the country. With regard to the energy industry of today, Niigata is home to the largest LNG base on the Japan Sea coast, and two natural gas pipelines run from Niigata's gas field and its LNG base to Tokyo and Sendai on Japan's Pacific coast (Figure 11). Moreover, the world's largest nuclear power station, which includes two ABWR (advanced boiling water reactors) developed in partnership with the US, is located in Niigata and provides electricity for the Tokyo area. Adjacent to the LNG base is one of the world's most efficient power stations and many plants producing cutting-edge technology are sited in the East Port Industrial Estate, the largest such complex on the Japan Sea coast. These plants are concrete examples of Japan's energy efficiency improvements.

As shown in Figure 11, there are 24 LNG bases in Japan, next to which are power stations that account for about 70% of Japan's natural gas consumption. Figure 12 shows the results of a survey concerning natural gas transport routes from Sakhalin 1. A study of both the Japan Sea route to Niigata and the Pacific route to Tokyo was carried out.

Figure 11

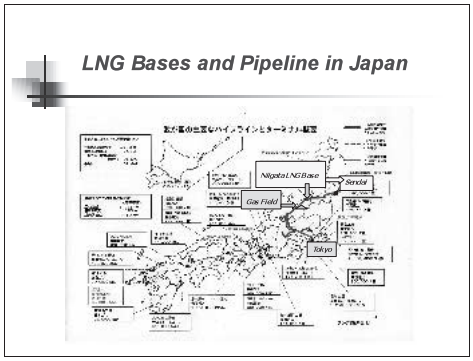
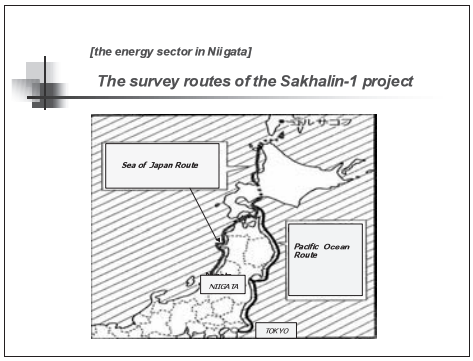


Figure 12



Japan's power generation companies generate electricity in a variety of forms. There are about major 1,800 power stations in Japan, including thermal power stations with an output in excess of 900MW, hydroelectric power stations with an output in excess of 150MW, and various nuclear power stations (Figure 13). Including small power stations, there are 187 power stations in Niigata Prefecture; hydroelectric power stations are the most numerous, with 100 of these located within the prefecture. In addition, there are also nuclear power stations and wind turbines, and Japan's largest biomass power station (85MW), owned by Hokuetsu Paper Mills, is due to begin operating very soon.

Figure 13

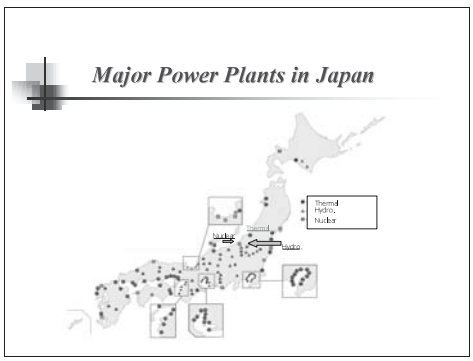
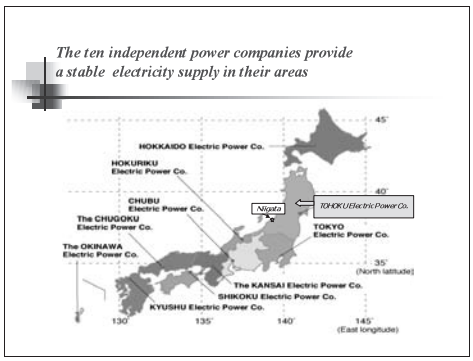


Figure 14



Japan's electricity is supplied by ten private-sector electricity companies, which each supply electricity to a particular region (Figure 14). Tohoku Electric Power Company, which supplies electricity to the Niigata area, supplies the seven prefectures of the Tohoku (northeast) region, supplying more than 20% of the electricity supplied in Japan as a whole. Tokyo Electric Power Company's Kashiwazaki nuclear power station is the world's largest nuclear power station and sends electricity to Tokyo, where it is consumed. The largest industrial complex on the Japan Sea coast, the Niigata East Port industrial estate, is home to an LNG base and Tohoku Electric Power Company's Higashi Niigata power station, which uses natural gas, and the adjoining plants producing cutting-

edge technology conserve energy in their production processes.

Natural gas is not only attracting attention as a fuel for power generation; the development of fuel cells that can be used in households to produce both electricity and hot water is being promoted worldwide, particularly in cold regions that are seeking to establish infrastructure based on natural gas. Niigata is also home to a plant manufacturing fuel cells for household use and these cells are currently being tested, with the aim of reducing their price.

I would like to introduce one specific example of energy and environmental cooperation promoted by ERINA at the request of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). In December 2002, a delegation of representatives of the energy industry in Mongolia and Far Eastern Russia visited energy facilities in and around Niigata and held discussions. They visited Niigata's LNG base, a combined-cycle power station, a nuclear power station, a hydroelectric power station, a town gas facility and a fuel cell facility. Questions focused on the operation, maintenance, and construction and operation costs of power stations. This wealth of activities will be important in promoting concrete energy and environmental cooperation in Northeast Asia.

Moreover, energy and environmental cooperation is a challenge that spans the generations. In the future, it will be necessary to promote cooperation that involves the younger generations.

With regard to the grand design for a regional action plan on energy and environmental cooperation, rather than traveling along the path of "partial optimization", which aims toward a situation in which each country tries to deal with Northeast Asia's energy and environmental problems working alone, we should pursue "total optimization", aiming to resolve these problems through regional cooperation based on mutual complementarities. In doing so, deliberations concerning an action plan aimed at sustainable development, including the role that each country should play, will be able to commence. The ultimate challenge in order to overcome these issues is the establishment of a comprehensive international institution dealing with energy and the environment, but at present there are, unfortunately, no obvious incentives for countries to act jointly. Consequently, the only practical option is to formulate individual feasible plans and to put these into practice, thereby increasing awareness of the usefulness and effectiveness of international cooperation.

Making use of Niigata's abundant experience in the energy field and geographical proximity, as well as ERINA's superb coordination ability, would be highly effective in promoting such activities aimed at furthering exchange in Northeast Asia.

The 21st century is certainly not just an extension of the 20th century. Achieving the transformation of values, institutional reform and technological innovation will be crucial foundations in a strategy for the future. The 20th century was the era of development and growth, but in the 21st century we should aim for sustainability and harmony; in addition, rather than the zero-sum game involving competition for resources, positive efforts aimed at regional prosperity by achieving a win-win situation for all the countries of Northeast Asia, including the solution of environmental problems, will be required. I would like to emphasize that, in this sense, the 3E target is an option that is well worth aiming for.

Taro Nakayama
Member of the National Diet (Former Foreign Minister of Japan)

Visiting Europe in 1990 or thereabouts, I became keenly aware that, in light of the historical facts of the dispatch of gas to Europe via a pipeline from Siberia, even at the height of the Cold War, the ideal global approach for the future would be to formulate a policy concerning the consumption of resources while skillfully coordinating resource consumption with environmental conservation.

At the time of the first Gulf War, Japan's dependence on overseas energy sources was 86%. Currently this must stand at around 88%. In other words, Japan's energy problems have hardly changed at all since ten years ago. We have stockpiled around 154 days' worth of oil. This is a major characteristic. Regional economies around the world are now being restructured. New economic structures are being created, called free trade agreements (FTAs). Countries in North, Central and South America, such as Canada, Mexico, the US and Chile, are trying to become one big economic bloc. The total length of pipelines in the US and Mexico is around 40,000km. This is quite short compared with the situation in Russia, but there is an extremely good supply network.

How will free trade progress in the future? Japan has already concluded FTAs with the Philippines and Singapore, and is currently in the process of negotiating further FTAs with the ROK and Thailand. The year before last, then Chinese President Jiang Zemin declared that China would conclude FTAs with the countries of ASEAN within the next ten years, creating an economic bloc. Amidst this kind of situation, it seems that we are facing the sizeable problem of how to look at FTAs and energy problems.

In the Lower House of the Diet, I serve as the Chairman of the Research Commission on the Constitution, which carries out research concerning the constitutions of various countries; we have observed that the EU has begun to wield a vast amount of power. In their strategic contest with the US, the 26 countries of Europe have concluded FTAs. As a result, transport has flourished, as has the efficient use of energy. Asia is lagging behind with regard to this issue and it would be no exaggeration to say that all the countries in this region are reliant on overseas sources for their primary energy supply. There is a particular over-reliance on the Middle East, which is an exceedingly risky strategy.

In any case, it is necessary to create another energy gateway. This will be influenced by the direction in which talks between Russia and Japan progress in the future. I used to advocate the concept of an Asian Energy Community, but the question of what to do about regional frameworks within a global context in the future is likely to become a major problem. In China, with its population of 1.3 billion, intensive production activities are taking place, and its government is pursuing a vast diplomatic strategy focused on the securing of the energy that powers these production activities. Amidst this situation, if talks between Japan and Russia, which includes the region of Siberia, concerning the distribution of energy go well and joint development takes place, a new political picture for Northeast Asia may emerge. It is an immense challenge, but if the strategy could just be determined, the only problem would then be that of money. With regard to the questions of how to secure budgets for seeking financing and what is to be done with

regard to a financial institution for this region, the Northeast Asia Economic Forum has reported that the establishment of a Northeast Asian Development Bank is vital. If a specialist international financial institution for Northeast Asia could be created, the next questions would be what should be done about economic cooperation and, most importantly, how energy should be distributed.

Huge changes are going to take place worldwide. Europe is a society with a Christian civilization, but if Turkey also joins the EU, then Muslims will also become part of Europe; in fact, many Muslims have already settled in Germany. It would be fair to say that there is hardly any conflict between different ethnic groups in Europe. Over the next couple of years, Japan's productive population will inexorably decline. Given this population structure, it will be necessary for Japan to invite talented people from overseas and improve the social environment in order to make it easier for such people to work in Japan. Hitherto, Japanese people have been given to believing that only Japanese people lived in Japan, but the country is likely to become a heterogeneous state in the future. The population structure will change significantly, as will Northeast Asia as a whole.

Russia currently has a population of 140 million, but this is likely to fall to 70 million over the next century. Japan's population currently stands at 126 million, but this is also forecast to fall to 70 million over the next century. Given these grim facts, the biggest challenge is likely to be the question of how to ensure a secure supply of the energy required by the people of the region.

I believe that the world will undergo another transformation. The axis for this will be Asia, particularly Northeast Asia. In this sense, we are proactively tackling this region's problems.

The time has come when we must think about finding ways of developing Siberia's gas fields by means of international cooperation and determining the supply rate according to the allocation of funding invested in such projects. Things that we have never before experienced are likely to happen, but we must have foresight in our response to an age that will require multilateral cooperation.

The countries of the region surrounding the Japan Sea are all nervous about how to solve the nuclear issue, including that relating to the DPRK, but if we look at the situation calmly, we can see that the country with the largest number of nuclear power stations in Asia is actually Japan, with 51 such facilities. China is trying to build nuclear power stations and three already exist in Taiwan. No talks have yet taken place in Northeast Asia regarding the reprocessing of used nuclear fuel. The only cooperation in the field of atomic energy is that taking place between Japan and Russia, relating to the dismantling of a nuclear submarine near Vladivostok.

I believe that, with the advent of a new age, policies that will represent the culmination of all the efforts made by Niigata Prefecture over many years should be formulated quickly. If satisfactory outcomes could be achieved with regard to European integration and the issue of Northeast Asian stability, as well as the conclusion of FTAs with Asia, particularly ASEAN, an age in which Asia as a whole, including Northeast Asia, will be able to achieve great things will undoubtedly arrive. Looking at the situation in terms of population, India and China both currently have populations of 1.3 billion, while other countries have smaller populations. In other words, the biggest issue is how

quickly we can conclude FTAs; if we could conclude an FTA with Russia, it would represent significant progress towards a multifaceted solution that resolves a diverse range of issues, including those relating to energy.

Hirobumi Kayama

Deputy Director, Petroleum and Natural Gas Division
Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry

Against the background of their geographical proximity and Japan's high dependence on the Middle East (which has risen to about 88% at present), the possibilities offered by Russia's oil and natural gas resources and the potential for cooperation with Japan are increasingly becoming the focus of attention. The importance of energy cooperation has been affirmed numerous times in meetings between the Japanese and Russian leaders. The Japan-Russia Action Plan and the joint statement issued at the time of Prime Minister Mikhail Kasyanov's visit to Japan also specifically mentioned energy as an issue. The Pacific pipeline was mentioned as a specific plan, as, of course, were the Sakhalin I and II projects.

There are various theories about the amount that it could be transported under the Pacific pipeline project, but if, for instance, 500 MT were to be transported annually via the pipeline, this would equate to 1 million barrels; given that Japan imports 4 million barrels, the overall significance of this is patently obvious. If Russian oil were supplied to the Asia-Pacific region, the results would not be limited to Japan: there would be a significant positive impact on oil markets throughout the Pacific Rim.

With regard to this point, the strategic importance is similarly recognized on the Russian side as well. If conclusive proof were obtained that the completion of the pipeline would lead to eastward export routes being secured, upstream development in Eastern Siberia would be promoted. Furthermore, it would be possible to secure more supply sources. Russia is aware of the strategic importance of the Pacific pipeline project for both countries, so it has been affirmed in various documents signed by the leaders of the two countries as a specific energy cooperation project. It was first verified in document form in the January 2003 Japan-Russia Action Plan. A summit was held in May of that year, and further talks took place between former Prime Minister Yoshiro Mori and President Putin in June; in addition, then Foreign Minister Yoriko Kawaguchi and then Deputy Prime Minister Viktor Khristenko held talks during the same month. Given the appearance of the Pacific pipeline as a specific project plan during this series of meetings, the feeling emerged that talks between experts in both Japan and Russia should be initiated.

From the Japanese side, Hirofumi Katase, then Director of the Petroleum and Natural Gas Resource Division at METI served as chairman of the Japan-Russia Experts' Group, and other committee members included representatives of such bodies as the Ministry of Foreign Affairs, JOGMEC (Japan Oil, Gas and Metals National Corporation), JBIC (Japan Bank for International Cooperation) and NEXI (Nippon Export and Investment Insurance). From the Russian side, the committee was chaired by the then Deputy Energy Minister, with other participants including experts from such bodies as the Ministry of Natural Resources and the Ministry of Economic Development and Trade. Accordingly, extremely dynamic discussions took place. The committee met five times, with meetings of the various subcommittees dealing with specific areas of cooperation bringing the number of rounds of discussions to 15. As a result, when Prime Minister Mikhail Kasyanov visited

Japan in December 2003, a joint statement was issued, welcoming the progress of discussions by the Experts' Group. Subsequently, there was a cabinet reshuffle in Russia, as well as structural changes within the government, including President Putin's election to a second term in office. In September last year, Shoichi Nakagawa, Minister of Economy, Trade and Industry, visited Russia and held dynamic talks with Deputy Prime Minister Alexander Zhukov and Minister for Industry and Energy Viktor Khristenko; in addition, at the APEC meeting in Chile in November of last year, he held talks with Minister of Economic Development and Trade German Gref. At the end of 2004, the Russian Government issued its decision concerning the Pacific pipeline; in January this year, Foreign Minister Nobutaka Machimura visited Russia and met with Mr. Khristenko again and they affirmed the importance of continuing expert-level discussions about this issue. This coherent position of Japan's in its discussions with Russia demonstrates Japan's wish to cooperate with Russia in this project, as long as it benefits both sides. More specifically, discussions have taken place at various levels, between the leaders of both countries, as well as between relevant cabinet members and experts; these discussions have focused on the following issues: i) the importance of cooperating in the development of oil fields in order to secure the requisite volume of oil to be transported via this pipeline; ii) the wish to give proactive consideration to the question of finance, if the feasibility of the project is confirmed and the situation is conducive to securing financing, as a great deal of money will be required for pipeline construction; iii) the desire to cooperate with Japan in the feasibility study for this project.

With regard to the overall strategic importance of the Pacific pipeline, if those in the oil industry were to obtain conclusive proof that the oil from this project would definitely flow to the newly opened-up Pacific market, this is likely to result in the promotion of upstream development in Eastern Siberia, the potential of which has not fully been developed in the past. If upstream development were promoted, more of the strategic commodity that is oil would be supplied to a greater number of countries. As a result, this would have strategic significance not only for Japan and Russia, but also for all the countries of the Pacific Rim. From this perspective, talks with the Russian agency head dealing with this project began last month. It was reported in the media under the headline "Experts' Group Meetings to Resume?", but Japan's position is that it has continuously conducted discussions at various levels, without being restricted to the Experts' Group.

We would like to continue significant discussions aimed at the realization of the pipeline. At the end of last year, the Russian government announced that the pipeline would be constructed from Taishet to Perevoznaya Bay, via Skovorodino, with the details, including the construction phases, being determined by 1st May. With regard to this deadline, it has been reported by some sources that Mr. Khristenko has urged those within the government considering these issues to speed up their deliberations in order to complete them by 15th March. While keeping an eye on this schedule, we would like to make progress with discussions with the Russian side in a way that will be of mutual benefit.

Vladimir V. Saenko

Deputy Director, Strategic Development Department for Fuel and Energy Complex
Ministry of Industry and Energy

In the sense that they are home to many natural resources, including oil, gas and coal, Eastern Siberia and the Far Eastern region are extremely affluent areas. For these regions, the countries of Northeast Asia occupy an exceedingly important position and we must build cooperative relationships between these regions.

Russia's energy strategy posits a number of scenarios relating to the production, refining and export of oil and gas. Each scenario also reflects the domestic economic situation, including macroeconomic indicators and consumption trends.

Figure 1 shows a forecast of the amount of investment required in order to realize each scenario.

Oil production is forecast to rise to 530 MT by 2015 (Figure 2). Of this, it is envisaged that about 65 MT will be exported to countries in East Asia, with total exports expected to amount to around 310 MT. The share of the Asia-Pacific region in total exports is currently rising by about 3% annually, and is forecast to rise to 15-18% by 2015. The amount of investment required in order to achieve this is likely to be $250 billion.

Figure 1

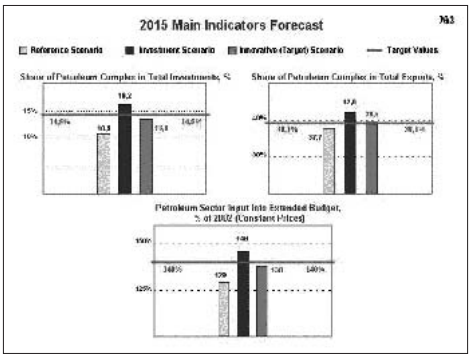
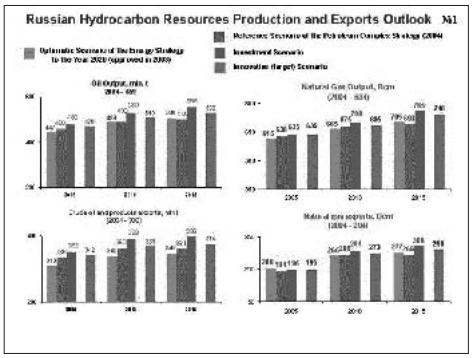


Figure 2



The key to developing a strategy will be the production situation in Eastern Siberia and the Far Eastern region. The development of oil and gas fields and infrastructure development relating to the Pacific pipeline from Taishet to Perevoznaya Bay via Skovorodino will be necessary.

The expansion of proven reserves will be vital to the development of oil and gas fields in the future. At present, the figures suggest that about 12% of the world's oil is concentrated in Russia, but growth in proven reserves is proving to be sluggish. The share of proven reserves in the Volga-Vyatka Federal District is about 65%, but in Eastern Siberia it is less than 8%. All haste must be made in speeding up development in this region. Proven reserves in this region currently stand at about 1.5 billion tons, but the fact is that these are concentrated in already-discovered oil and gas fields (Figure 3).

According to the long-term exploration program of the Ministry of Natural Resources, there is still plenty of latent potential in Eastern Russia (Figure 4). A significant expansion in reserves in Eastern Siberia is anticipated towards 2010, as a result of the kind of intensive development that has already taken place in Western Siberia. Under the long-term geological exploration program put together by the Ministry of Natural Resources, there are plans to hold a round of international bidding for development licenses during 2005.

Figure 3

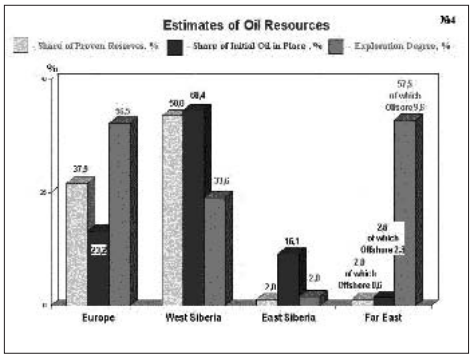


Figure 4

Estimates crude reserves of some East Siberian fields, mln.t

Field	Crude reserves
Yurubcheno-Takhomskoye	442,5
Verkhnechonskoye	204,9
Kuyumbinskoye	203,2
Vankorskoye	125,2
Talakan	123,1

Currently, production volumes of oil and gas are growing extremely slowly, with just 4 MT - a minuscule amount - of oil being produced in 2005. The reasons behind this include the small scale of individual oil and gas fields, which are also dispersed over a wide area, and the fact that transport systems such as pipelines have yet to be completed. Moreover, oil and gas condensate fields, propane gas, helium and butane are also scattered around the region, and the cost factor is a bigger obstacle to the resolution of this situation than any technical problems.

Russia's basic stance with regard to the development of oil and gas resources is that the country must adopt an integrated approach. This would permit development to be promoted in a way that takes into account the various factors, such as the status and development prospects of hydrocarbons, as well as processing capacity; in addition, the creation of an integrated oil and gas system would also become possible.

Initially, a number of routes for the Pacific pipeline were considered. The route called the southern route was considered first of all, but it was not approved, because a number of problems were discovered, such as the fact that it passed through a nature reserve, so the northern route was selected at a Cabinet meeting in December 2004 (Figure 5).

At the request of the central government, the Ministry of Industry and Energy has held repeated discussions with such ministries as the Ministry of Natural Resources and the Ministry of Economic Development and Trade, as well as Transneft and various research institutions about such detailed issues as the construction period of the pipeline. At this stage, deliberations are focusing on such topics as improving the production situation in Eastern Siberia, the cost of mineral exploration and delivery problems.

After Western Siberian oil starts to flow along the pipeline route from Taishet,

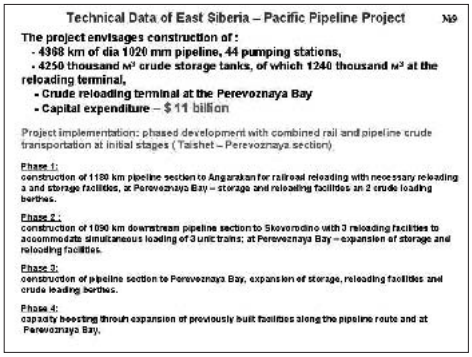
deliberations will be necessary regarding pumping stations and pipelines not only in Eastern Siberia, but also in Western Siberia.

The first draft of the design for the pipeline between Taishet and Skovorodino is due to be announced this year (Figure 6). The situation with regard to the quantity of reserves, the amount of supply available at each oil field and the development status of infrastructure, as well as the financial efficiency of the project will be assessed in this draft, with the construction stages being determined as a result. As a result of these deliberations, the Ministry of Natural Resources will make proposals concerning the prospects for oil field development. Issues to be considered include the quantity of minimum proven reserves, the timing of the development of mineral deposits, and the minimum quantities to be delivered by Transneft and Russian Railways. It will be necessary to clarify the amount and sources of the funding required for the construction of the pipeline from Eastern Siberia to the Pacific, and the conditions for ensuring that state support is rational, as well as the situation with regard to the development of laws required in order to do this.

Russia has high hopes for the implementation of a long-term cooperation program with Japan in the field of energy. Similar programs are in the process of being implemented with China and the ROK.

Figure 5

Figure 6



Kensaku Kumabe

Institute of Economic Research, Hitotsubashi University

Due to its v-shaped economic recovery in the wake of the 1998 financial crisis, its continued high economic growth and its abundant resources, including oil, Russia has been attracting attention worldwide as one of the BRICs countries. Japanese companies, which had been cautious about doing business with Russia because of the chaotic political and economic situation in the 1990s and the high risks involved, have been engaging in increasingly intense activities over the last few years. The volume of trade

grew from $5.9 billion in 2003 to more than $9.0 billion in 2004. Moreover, demand is tight as a result of China's rapid economic growth and Japanese companies are also beginning to show a great deal of interest in investing in the development of coal in Far Eastern Russia and Siberia. In fact, this interest is not confined to the resource sector, as can be seen from moves towards the production of Japanese cars in Russia, and interest in investing in the manufacturing sector, which had been sluggish, is also growing. According to the 2004 Foreign Investment Survey, which is carried out every year by JBIC, Russia is now in 6th place, after the US, in the ranking of the most promising destinations for direct investment over the next three years (it was in 10th place in 2003 and 16th in 2002). When energy imports from Sakhalin begin in earnest, the economic relationship between Japan and Russia will expand further.

Germany is a major purchaser of Russian natural gas and is Russia's biggest trade partner. Moreover, Turkey, which accounted for hundreds of millions of dollars of Russia's export revenue until the collapse of the Soviet Union, has laid a gas pipeline along the bed of the Black Sea and has begun to import gas via this pipeline, bringing the total value of Russia's exports to Turkey in 2003 to $4.8 billion. Building cooperative relationships in the energy field is the quickest way of reinforcing economic relationships with Russia, and I hope that even closer cooperative relationships will be forged. Based on this situation, the construction of a pipeline from Eastern Siberia is being discussed between Japan and Russia and Japan and China, as well, more recently, as between the ROK and Russia.

Securing energy resources is a crucial issue for Japan. From the perspective of diversifying its sources of supply because it is overly reliant on the Middle East for oil, it is only natural that Russia should be positioned as an important source of energy supply. By extension, we can understand that the significance of the Pacific pipeline is about to be discovered. However, there was one case in which a large quantity of oil was found in a single exploratory well in Peru, and a pipeline was built solely on the basis of this find, without carrying out the requisite work to confirm the quantity of reserves. As a result, it turned out that the reserves were insufficient, so oil did not flow along the pipeline, and the Peruvian government ended up having to make debt repayments. I hope that the Japanese and Russian negotiators will make sure that an adequate feasibility study is carried out, including a survey of the quantity of oil reserves, and that they will take care to ensure that the Pacific pipeline does not end up going the same way.

Relating to this pipeline, there have been some strange reports in the press, to the effect that Russia is weighing up China and Japan and that Japan and China are battling over which country will be able to receive the oil. I believe that this is most unfortunate. The development of Sakhalin concessions other than I and II will begin in the future. Moreover, the commencement of the gas development and transport project focusing on Kovykta, on the outskirts of Irkutsk, is not far off. Both China and the ROK are showing a great deal of interest in participating in these projects. Given that economic relationships between Japan and China, Japan and the ROK, and China and the ROK are intensifying, it is clear that making this region more stable and promoting its economic development will be vital to Japan's security. With regard to the future development of projects relating to energy and mineral resources, as well as pipeline construction, ideas based on the medium- to long-term perspective, which also take into account multilateral, rather than

bilateral, cooperative relationships, will be required. I sincerely hope that Japan will play a leading role in this.

It goes without saying that, in the future, in order to expand economic cooperation and business relationships between Japan and Russia, and import energy in the long term in particular, building relationships of trust between Japan and Russia will be important. However, some recent incidents have placed a damper on things. Last week, when a Japanese-Russian joint venture tried to export timber from Vanino Port, as it had done previously, it suffered harassment and was informed that the timber would not be loaded onto the ship. Fortunately, in this case, Khabarovsk Governor Victor Ishaev stepped in and it looks as though the problem will be resolved. Currently, Japanese companies are considering investing in the development of coal in Russia, but if it is not possible to use shipping ports without such problems, they will be too afraid to invest and it will also be difficult for them to provide finance. The problem of tax evasion by Japan Tobacco has also been reported. The company was prosecuted on charges of tax evasion dating back a number of years, despite the existence of a statute of limitations, and there is a risk that the company will have to pay a sizeable sum of money. If this happens, it will become impossible to carry out company screening in order to provide loans, or to find Russian partners.

We would like to be standard-bearers for promoting business between Japan and Russia, but unfortunately there is little that we can do about the occurrence of such incidents. It is our fervent wish that the business and investment environment in Russia be improved.

Valentin I. Sergienko

Chairman, Far Eastern Branch, Academy of Sciences

The Eastern Siberia pipeline project is being implemented under a presidential directive, with a view to exports to East Asian markets, which are expected to continue developing at the remarkable pace seen in recent years. The pipeline runs from Taishet to Perevoznaya Bay in Primorsky Krai, via Kazachinskoye and Skovorodino. In addition, there are plans to deploy relevant facilities in Irkutsk Oblast, the Buryat Republic, Chita Oblast, Amur Oblast, the Jewish Autonomous Oblast, Khabarovsk Krai and Primorsky Krai.

The total length of the pipeline will be 4,200km, although the majority of this will be underground, with just 583km running overland. The diameter of the main pipeline will be 1,220mm, making it possible to transport 80 MT of crude oil annually. There are also plans to build relay storage facilities with a capacity of 4 million cubic meters (MCM) along the pipeline route, and the construction of a transshipment base at Perevoznaya that is capable of receiving tankers in the 3 MT class is also planned. The construction costs are estimated at $11-14.5 billion initially, with 38,300 workers required for construction work between Taishet and Perevoznaya. Even after the pipeline has been completed, new jobs with good pay and conditions are likely to be created in the service sector.

The construction of the pipeline will promote development in such domestic sectors as

construction, transport and agriculture, as well as helping distribution in Primorsky Krai to flourish. The main beneficiaries of this will be the two or three places where oil transshipment bases are built. Furthermore, technology and equipment of the highest standard will be used in the construction of the pipeline, with the aim of minimizing the resultant environmental damage. Given that the pipeline is due to pass through Lake Baikal, which has been designated as a World Heritage Site by UNESCO, it will be necessary to take the utmost care in the design process. The pipeline is also due to pass through other national parks, an important conservation area in Southern Primorsky Krai called Himalaya Gorge, and areas adjacent to a national marine park.

In addition to building large-scale transshipment bases at Taishet Station and Perevoznaya Bay, there are plans to deploy intermediate bases at 30 points along the route, as well as establishing transit storage facilities at 14 points. The oil will be transported from Perevoznaya to the delivery destination in tankers.

According to preliminary surveys, 50% of Primorsky Krai is prone to natural disasters, so the pipeline will pass through areas where there is a danger of floods, mudslides and avalanches. Moreover, most of the areas are prone to fires. Earthquakes with an intensity of 6 frequently occur in the area to the north of Lake Baikal, which is a particularly dangerous area. In Irkutsk Oblast, work is proceeding along the route of the Baikal-Amur (BAM) Railway, but it is necessary to cross dozens of rivers, including the Angara River, the Lena River and the Vitim River.

Ecological databases must be enhanced at the stage of developing the optimum design that takes the environmental impact into consideration. Accordingly, it is necessary to conduct research in four stages: 1) collating preliminary information; 2) research into nature conservation regulations and the potential for natural disasters; 3) implementing field surveys in order to fill in any gaps in the preliminary survey; and 4) environmental monitoring by means of a program approved at the construction and operation stages. In order to gather preliminary information, the creation of coordination centers where 24-hour monitoring stations could be established would be required in each region.

There are plans to establish a specialist institution as a subsidiary organization of the Far Eastern Center for Strategic Research on Fuel and Energy Complex Development, which could monitor the situation in all regions along the planned route. There is a broad array of monitoring work to be carried out in the future. Protecting the unique natural environment of Siberia and the Far Eastern region from destruction is the main premise, so we are hopeful that cooperative relationships with neighboring countries will develop in the realm of the exchange of ecological information and technology.

Tadashi Sugimoto

Advisor, Japan-Russia Business Cooperation Committee, Keidanren

In my opinion, the Pacific crude oil pipeline issue is an urgent one for Japan as well as for the relationship between Japan and Russia. However, listening to the opinions of the business community, there is not a very broad awareness of this and views in government circles are not uniform either. There are things that make one question whether Japan actually has any interest in this project in the first place. What are the reasons for this? I believe that we will not get a second chance with regard to this issue, so we should make a move on it now.

To give you some background knowledge before coming to the main point of my remarks, I would like to mention three points about the facts (without evaluating them) concerning Japan's views on energy security.

Firstly, there is the problem of dependence on the Middle East. When talking about Japan's energy situation and relevant problems, the country's dependence on the Middle East is frequently given as an example and a number of problems stemming from this issue have also been pointed out, but there was a time when I thought that the diversification of supply sources was not just being paid lip service, but actually being tackled in earnest at the levels of both the government and private sector companies. However, although dependence on the Middle East was more than 85% until 1970, falling to 67-68% in 1985-8, it had risen again to 87.9% by 2001, so the situation has not improved despite the passage of 30 years.

Secondly, there used to be a phrase in Japan: "red gas". It was an expression used to deride gas produced in the Soviet Union and was still being used by the Japanese government and some in the private sector in the latter half of the 1980s, when almost 20 years had passed since the decision was taken to introduce natural gas in Europe. Speaking from the perspective of someone who was, at that time, dealing with the issue of the introduction of natural gas from Sakhalin at SODECO (Sakhalin oil and gas development), when I think that energy cooperation between Japan and Russia could have been achieved at the end of the 1980s, I cannot help but feel that it is not only time that we have lost.

Thirdly, there was a time when the attitude that "energy is a commodity, so all we have to do is buy it from places that have it" was prevalent within the government and the private sector. Japan buys almost 90% of its crude oil demand from specific regions at a higher price than is paid in the West, and then imports it via a dangerously crowded strait. However, with regard to the practical problems, one cannot help but believe that the general attitude in Japan is that there are no problems at present, so there will be no problems in the future either.

Leaving aside the rights and wrongs of these points, both the Japan-Russia Business Cooperation Committee and I personally are greatly interested in the Pacific crude oil pipeline issue and would like to do our utmost to ensure that it is translated into reality. I would like to highlight three problems and make some proposals.

The first problem is that securing energy is not the only problem involving Japan and Russia. There are those of the opinion that imports of energy from Russia should be tied

in with the territorial issue. They believe that if we cooperate in the development of Russian resources, Russia should return all four (or two of the four) islands to Japan. However, securing energy should be viewed purely from the perspective of Japan's energy security; in other words, it is an issue that should be judged from the perspective that the most promising long-term, stable supply source for Japan just happens to be in Russia. We believe that the concept of linking the issue with political problems deviates from the long-range national policy. We can understand this if we recall the background to the promotion of the Sakhalin projects in Russia.

The second problem I wish to point out is that of Japan's readiness and response. Since the Russian government made its decision on the pipeline issue on 31st December 2004, a number of developments have been reported. The other day I had the opportunity to talk to board members from Transneft and they told me that the company does not want to wait until the end of May for the details to be decided. Moreover, recent reports suggest that the company is prepared to scrape together the money needed to construct the pipeline, estimated at $11.5 billion, even if it means having to reduce the dividends that it pays its shareholders over the next few years. I would like to discuss this issue in terms of two aspects.

Firstly, although there is a partner with whom the project can be undertaken, the question is whether the intent of that partner, namely Japan, has been adequately conveyed to the Russian side. Is participation in upstream aspects (exploration, development, production) being discussed seriously? Who will be able to provide the money for exploration and development, and how much will they be able to provide? Moreover, with regard to the purchase of the crude oil, naturally it will be bought if it is cheap, but will it be possible to persuade the Russian side using this argument alone? With regard to the construction of the pipeline, anyone can say that they would like the materials and equipment to be bought, but what will the conditions be if the money is actually provided?

Secondly, with regard to domestic Japanese problems, there are the issues of the degree to which preparations have progressed among those involved; in other words, at this stage, the government is promoting negotiations, but to what degree are private sector companies - the main players in the implementation of the project - involved? If we look at the status of preparations on the Russian side, at this point in time, the Japanese side should have reached a consensus in principle regarding participation in the upstream aspects and the purchase of crude oil, and it has to formulate a concrete plan for the provision of funds for pipeline construction; however, what is the actual situation?

The Russian side seems to be giving out signs to the effect that, "The construction of the pipeline is a well-established fact, but no decision will be made if there are no reserves. We will build the pipeline with or without Japan's participation. The Russian side has almost completed its preparations. If Japan wishes to participate, it should state clearly what it wishes to do and how it wishes to do it." The fact that no representatives from Rosneft or Transneft, the key players in this project, are participating in this Forum is not the responsibility of the organizers, but does suggest that it lacks the finishing touches and would not seem to be entirely coincidental.

The third problem relates to the significance of Russia's energy resources. The other day, NIRA (National Institute for Research Advancement) held its 30th anniversary

symposium. The theme was *What Should We Do Now in Order to Achieve East Asian Economic Integration?* I was given the opportunity to speak, so I emphasized that Russia's energy is an essential element in East Asian economic integration. Although Japan's energy security and its energy cooperation with Russia would seem to be separate problems, in my view they are actually one and the same issue. Given that interregional cooperation will be required if we are to tackle this issue in earnest, I would like to make the following supplementary proposals.

Firstly, I wish to propose the formulation of a framework for binding discussions with the countries of East Asia, that is to say, China and the ROK. Secondly, I would like to propose that relations with the DPRK be regulated while bearing in mind the future laying of a natural gas pipeline and the upgrading of infrastructure within the region.

To elaborate upon this, although we are talking about mutually dependent economic relations, political judgment will be vital in building such relationships. It will be recalled that the political judgment of both Eastern and Western leaders played a vital part in the construction of the gas pipeline between the Soviet Union and Western Europe that transformed the composition of the East-West conflict and built the world we have today. For the sake of the energy security of Japan, as well as that of Northeast Asia as a whole, I hope that those in both the public and private sectors in the countries involved will cooperate.

Vladimir I. Syrkin

Deputy Governor, Khabarovsk Krai

The Russian Federation is examining a medium-term socioeconomic development plan to 2008. It is most pleasing that the Federal Government has taken up the problems relating to regional development in this kind of document. From the perspective of this Forum as well, it seems that realistic possibilities have emerged for Russia. In other words, importance is being attached to the question of how cooperation at the level of companies in the fuel and energy sector can contribute to regional development.

With regard to pipeline distribution, what is needed at the regional level is not solely to seek profits through exports; rather, it is necessary to pursue the potential for producing finished products and high added-value products in large quantities in Eastern Siberia and the Far Eastern region in the short-term. Furthermore, there is a considerable emphasis on geological surveys in this government program; above all, the infusion of funds into Eastern Siberia, including the Sakha Republic, will enable crude oil from the Sakha Republic to be transported to the Pacific coast via the pipeline, instead of crude oil from Western Siberia. If a new production area in the Far Eastern region were developed, this would be a major driving force in socioeconomic development in the region. Hitherto, there has been a lack of long-term large-scale projects in Eastern Siberia and the Far Eastern region, but crude oil and gas pipelines could make up for this.

Please refer to Figures 1 & 2 for details of estimated reserves of crude oil and natural gas in Eastern Russia.

Figure 1

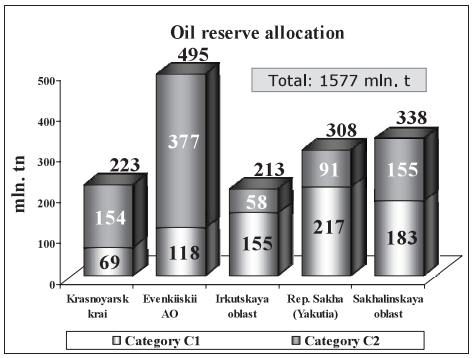
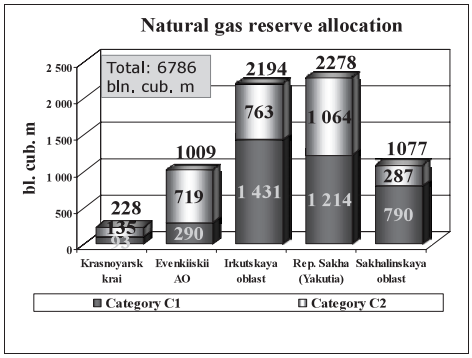


Figure 2



A number of fuel and energy projects are underway in Khabarovsk Krai, and those being financed by foreign investment are contributing to the energy security of the whole of East Asia. In the Sakhalin projects, there is the construction of a transshipment base at De Kastri Port, which will promote crude oil exports using tankers. A 660mm diameter pipeline will cross Sakhalin and run to the two onshore tanker berths at De Kastri. This terminal is adjacent to the existing Rosneft-Sakhalinmorneftegas terminal, which has a capacity of 1 MT and has been operating since 1998 (Figure 3).

The construction of the pipeline will begin in the latter half of 2005. It is planned that this facility will operate 24 hours a day, 365 days a year, and will ship 12 MT annually in 110,000-ton tankers. The resources of the Sakhalin continental shelf will promote strategic development in the energy sector in Khabarovsk Krai, which will improve the region's fuel balance and energy sector, thereby enhancing energy security.

Figure 3

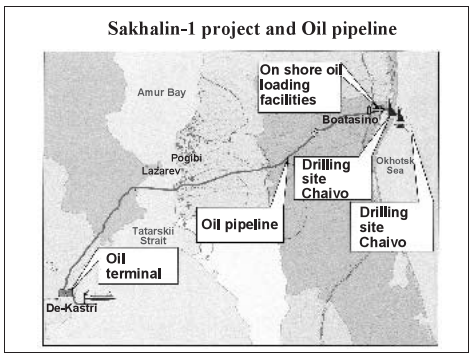


Figure 4

After the completion of the Sakhalin 1 project, gas will also be supplied from Sakhalin (Figure 4). A pipeline with a capacity of 4.5 BCM will lead to 3 MCM of gas being released for export annually. 290km of the pipeline towards Khabarovsk Krai has been completed and it is due to begin operating in the third quarter of 2006.

The fuel and energy policy contains a plan for the modernization of the only two oil refineries in Russia located east of Irkutsk Oblast (Komsomolsk-na-Amure and Khabarovsk). In 2002, the oil refinery in Komsomolsk-na-Amure was modernized, but this was modernization aimed at the production of high added-value products for use in the production of white goods. The crude oil refining capacity of the Khabarovsk refinery is 4.5 MT annually; the modernization plan will be implemented using syndicate financing based on an agreement between Alliance of Russia and Samsung of the ROK. The value of investment is expected to amount to $500 million.

Thus, infrastructure will be upgraded in the near future and it is hoped that that the enhancement of the delivery system from Eastern Siberia to the Pacific coast will increase the energy security of East Asia.

Takumi Togashi

Director, Hokkaido Intellect Tank

At our think tank, called the Hokkaido Intellect Tank (HIT), my main focus is on internationalization strategy, venture cultivation and industrial policy in Hokkaido, which is located at the heart of Northeast Asia. At the same time, HIT is the secretariat of the Hokkaido Sakhalin Business Exchange Support Association (HSBESA), which provides business support for Japanese companies whose activities focus on Hokkaido and Far Eastern Russia, particularly Sakhalin.

The HSBESA principally consists of private sector companies and was established with the primary objective of creating a local support center for companies doing business with Russia. Hokkaido Prefectural Office did have an administrative office on Sakhalin, but as it was not an organization that had any functions relating to actually starting up a business on Sakhalin, we decided to establish our own center. This is the Hokkaido Business Center (HBC) in Yuzhno-Sakhalinsk.

The main activity of the HBC is providing overall support for business involving companies from Sakhalin and Hokkaido, such as making appointments when companies from one area are visiting the other area, offering support for participation in business talks, giving advice regarding the establishment of joint ventures and trade relationships, and providing local information. Membership currently consists of more than 100 private sector companies and 28 groups, such as municipalities.

It is almost four years since the HBC was established and both the content of the center's activities and the demands of member companies are gradually changing. In the first year, most of the companies were undergoing more-or-less their first experience of doing business with Russia, so the secretariat planned missions and organized conferences and business talks that met the needs of Japanese companies, but members have gradually begun to join forces with other companies and local authorities to organize overseas missions, without the need for the secretariat to organize them. We have reached the stage at which, if we provide information in our weekly newsletter about an event such as a trade fair or a round of bidding, companies are able to take the

initiative and submit applications to participate or complete the necessary procedures themselves, without the need for the secretariat to become involved. It could not be said that the level of basic business ability, such as trading experience and linguistic ability, is high, but even small, medium and micro enterprises are beginning to do business via their own routes and using their own antennae.

It would be no exaggeration to describe the HBC itself as "an entity that came about because of the Sakhalin projects". Undoubtedly, this project has provided the HBC's members with the opportunity to think about doing business with Russia. Some companies are trying to participate in the Sakhalin projects, while others are thinking about transport business linking Sakhalin and Hokkaido or are aiming to become involved in regional infrastructure development once the projects have made progress; although the approaches differ, the excitement of resource development on a global scale taking place on their doorstep is inspiring companies to take a step forward.

More specifically, companies with distinct competitiveness in such fields as equipment, products, technology, distance and networks are involved both directly and indirectly in these projects.

In the field of equipment, heavy machinery designed to specifications suitable for cold climates is being exported to Sakhalin in large quantities from Hokkaido. This is taking place in a variety of forms, from ultra-large-scale to small-scale, and the supply of components and maintenance services has also stemmed from this. Moreover, companies that have large-scale dredgers and carriers designed for use in cold climates are also participating in the Sakhalin projects, and there are cases in which idle plant for ready-mixing concrete and crushing stone is being put to use in Sakhalin.

I would like to introduce an example of companies with competitiveness in the fields of products and technology. One product being supplied to the Sakhalin projects from Hokkaido on a stable, regular basis is cement. Normal cement is produced in Russia as well, but Hokkaido's cement is used because it has superior durability in cold climates. Furthermore, concrete products such as foundations and hume pipes for piers are manufactured in Hokkaido and transported to Sakhalin. Unusually, many bio-toilets are also being used in the Sakhalin projects. These are manufactured by a company in Asahikawa called Seiwa Denko, which has just ten employees, and are toilets that use biotechnology, which can function even in such cold climates as that found on Mount Fuji. They seem to be extremely convenient at sites where there are no sewage facilities. Recently, they have been used to meet not only on-site needs, but also the needs of work barges.

Distance is Hokkaido's biggest advantage. Wakkanai and Korsakov on the opposite coast are linked by a regular ferry service, and cargo demand has increased sharply in recent years. Moreover, Wakkanai Port is used for winter maintenance of drilling rigs and as the last port of call for work barges, so this is having a ripple effect with regard to the procurement of materials, supplies, food and fuel. With regard to companies with a link to shipbuilding, it is expected that such operations as the maintenance and repair of carriers and work barges will result. Although it will not be possible for them to win in competition with other countries on the grounds of price alone, it is thought that shipbuilding companies in the Hokkaido area have become the focus of attention because they have a reasonable level of technology to hand at a time when major engineering work is taking

place at a rapid pace. Moreover, flights to Sakhalin from Hakodate and Shin-Chitose airports are constantly fully booked, mostly by those working on the projects. These flights are used not only by Japanese and Russians, but also by people from Europe, the US and Asia, and these people sometimes go sightseeing or shopping in Sapporo and Hakodate on their way to and from Sakhalin. They have a variety of ripple effects on the area, as they also use local hospitals, dentists and pharmacies.

Finally, there is competitiveness with regard to networks. This is actually the most important factor. Joint ventures are being operated in various parts of Hokkaido, including Wakkanai, Sapporo and Kushiro, and these have all been established following 5-10 years of contacts and exchange. There are examples that have begun as a result of friendly exchange, and others that were initiated following the hosting of training projects. Independently owned companies are at the center of these activities, with friendly relations and continued interaction developing into specific projects. Moreover, as Hakodate Airport is used by those involved in the projects, there are companies that have created a network of Western technical specialists and which began with the procurement of kitchen equipment, but now take on contracts for housing construction. Such networks built on the foundations of long years of experience and deep trust are one aspect of companies' competitiveness.

Before the Sakhalin projects began, the image of Russian business as a source of anxiety was prevalent even in Sapporo. A number of joint ventures failed and it is not the case that these have now been cast aside, but these large-scale projects have the advantage that the risks involved in recovering one's outlay are extremely small, so even ordinary businesses can participate with peace of mind. To put it another way, there is still lingering disquiet about other forms of business. A trade transaction of around ¥10 million is no problem at the moment, but great caution must be exercised with regard to infrastructure development and investment projects relating to the government. However, once oil and natural gas exports begin in earnest, it is likely that the local fiscal situation will improve, so Hokkaido companies are hoping that sooner or later it will be possible to avoid financial risk using a new mechanism.

The image of Russian people and companies held by the public is also changing. According to the 25th February edition of a local newspaper, a Hokkaido IT company called Dgic has begun a joint business project with a company in Vladivostok. This company is a major player that has a central role in Hokkaido's IT industry. Naturally, Russia's technological strength and economic stability form part of the background to the decision by such a company to begin doing business with Russia, but the reduced sense of unease regarding business with Russia is definitely one minor factor.

To sum up, one of the effects on Hokkaido of the Sakhalin projects has been an expansion in business opportunities for competitive local companies. Secondly, capital recovery, which was one source of anxiety, has been minimized in issues relating to the projects, so this has been the catalyst for starting up business with Russia. Thirdly, there has been an increase in the number of companies with contacts with Russian companies and people, putting in place an environment suitable for cultivating new business endeavors.

To conclude, I would like to give Niigata the following message. It has been proved in Hokkaido that companies that are uncompetitive and have no motivation or long-term

prospects will not be able to succeed, no matter how large the projects that they are trying to initiate. The Asian pipeline is an issue for the future, but it is important that we start thinking now about where our competitive advantages lie, what we can do and what kind of mechanism we can use in doing so.

Sergei V. Vasiliev

Economic Counselor, Russian Embassy in Japan

The main motif permeating this Forum is the problem of global judgment and local implementation. The Pacific pipeline project is a good example of a project undertaken on the basis of this kind of framework. It has a global perspective, but regional viewpoints and the opinions of those on the ground are also being emphasized.

It is said that global oil consumption will reach 6 billion tons by 2025. This works out as 1,200 barrels per day (bbl/d). It is estimated that Northeast Asia, including China, Japan and the ROK, will consume 18% of this. A particularly important point is that China's consumption will continue to grow. Current assessments suggest that Chinese consumption will double by 2025, overtaking Japanese consumption. It could well be reliant on imports for 75% of this consumption volume. Japan depends on imports for 99.5% of its oil, but if China ends up with a similar percentage, its imports will be 1.5 times greater than those of Japan. Based on current calculations, it is expected that Indonesia will become an energy-importing country in 2010.

The amount of investment required in order to carry out the Pacific pipeline project is massive. In comparison with this, one can only laugh disdainfully at the kind of figures mentioned by Yukos in connection with its China-oriented export project. If I recall correctly, it was something in the region of $2 billion. The Pacific pipeline plan is clearly a project on a completely different scale. It is currently estimated that $15-25 billion of investment will be required, but there is a distinct possibility that this will end up mushrooming by 1.5-2 times.

This project is an exceedingly long-term one, and has various connections to the regional economy. It is certainly a multifaceted project and there are inevitably problems relating to the question of companies from which countries will be involved in implementing it. Energy priorities are likely to lead to satisfactory results. It is hoped that this will lead to expanded relations between Russia and Japan, but it is not the case that there are no matters for concern.

The risks involved in implementing this kind of mega-project are correspondingly high. In addition, of course, to political risks, there are also economic and price-related risks. In reports about Russia's energy strategy, there can be quite a gap between forecast and actual figures. However, this is a daily occurrence as far as Russia is concerned, both politically and economically.

It is the market and production costs that will determine the price, so the issue of whether to raise or lower prices is not important. In fact, it is ensuring a stable price that is crucial. The price issue is closely connected to the issue of the development of the Far

Eastern region. Furthermore, in the sense that Russian-produced crude oil is close to the global market price, securing access to the Pacific coast could benefit both the supplier country and the consumer countries.

According to a statement by Mr. Khristenko, the Pacific pipeline is a high-priority project as far as the Russian government is concerned. I hope that Japanese companies will participate in this project in a variety of ways. I would like them to participate not only as buyers, but also as active participants in the implementation process. This includes not only Japanese companies in such diverse industrial sectors as steel and machinery, but also Japanese financial institutions.

Mr. Kumabe talked about the investment environment in Russia. I have the opportunity to speak directly to representatives of various Japanese companies and have received the impression that the majority of companies that are facing serious problems in Russia know exactly what the causes of those problems are. It is my understanding that Russia's tax authorities comply with the law. As far as I am aware, the period that can be investigated by the tax authorities with regard to backdating taxes is three years. Consequently, if they carried out their investigation last year, they could investigate the company's financial situation dating back to 2000. It must be a fact that there was some kind of problem relating to the company's compliance with the law. I would like to advise Japanese companies to adhere to the law; that is to say, they should not become involved with anything that contravenes the law. If they do this, both central and regional government leaders will welcome foreign investment with open arms.

In my opinion, ensuring closer dialogue at the national level is crucial. Currently, this long-term project is at the agreement stage. In other words, they are at the stage of discussing cooperation in the field of energy. I hope that this will become concrete, intensive cooperation. Russia is already actively promoting strategic relations with the EU. Holding similar exchanges of opinions with the countries of Northeast Asia would undoubtedly be beneficial for all the countries involved.

Ikuo Hirayama (Former Governor of Niigata Prefecture)

It has been estimated that the global population will reach 9 billion in 2050. Figures recently released by the United Nations estimate the figure to be 9.1 billion at the very least. The world's population will increase by 1.5 times on its current level. Another important figure emerges from the IEA's calculation that total worldwide energy consumption will increase by 2.85 times on the current level by 2050. The difference between this 2.85 times and the population increase of 1.5 times is the amount by which per capita energy consumption will increase. This means that the world will be too small for this population of 9 billion; in other words, we are entering an age in which our resources are too few.

Another problem is that the Keynesian system of control via man's wisdom, which had operated smoothly in each country since the end of the war, has broken down. The so-called market economy has combined with globalism, so that it is not only the logic of the market that determines the efficient allocation of resources; this is creating a significant gap between winner countries and loser countries. Is it not the case that the problem of energy in Northeast Asia, particularly Sakhalin and Eastern Siberia, has set a symbolic theme for the world as a whole? Can we avoid making energy a bone of contention and build a society in which humanity can cooperate for the first time from the perspective that "we are all members of the human race?"

Someone once said, "Environmental problems, energy problems, the problem of global population growth: states are too small to resolve these problems. However, states are too big to create happiness for their people." While states have advantages for us, there is the risk that they could be the source of conflict as the global population increases towards the figure of 9 billion in 2050.

Russia has vast energy resources. The development of these using money provided by advanced nations, principally the US, is likely to progress. China will enter the market as one of the biggest potential consumers of this energy, as will Japan. The million-dollar question is whether this will become a region in which the interests of each country collide, or whether it will become a place in which energy and population on a global scale are controlled and a balance maintained between them.

I sincerely hope that everyone in Northeast Asia will discuss this problem, that discussions will transcend the constraints of states, which may be too small to deal with it, and will progress to the common basis that we are all part of the human race and must all live on the same planet. Moreover, I hope that good proposals will arise from this. In this respect, there were a number of promising statements and reports at this Forum. Russia has supplied Europe with energy via a pipeline since the Soviet era. I would like Russia to lay a pipeline and play an important role in satisfying energy demand in Northeast Asia, including China, which will be one of the biggest potential consumers of the 21st century.

Susumu Abe (Chairman)

I would like to ask Dr. Mastepanov a question. Today, a number of hopes and expectations regarding Russia have been aired from the Japanese side, but I would like to ask your opinion on hopes for cooperation in the fields of energy and the environment from Russia's perspective. In particular, in light of the Russian government's formulation

of an energy strategy to 2020 and your appointment as a top Gazprom official at a time when the company is going to play a leading role in Northeast Asia, I would like to ask about your expectations *vis-à-vis* Japan.

Alexei Mastepanov

As far as Russia is concerned, Japan continues to be a stable long-term partner in the energy field. The supply of natural gas to Europe has been taking place for some years, and it was a Japanese company that supplied the large diameter pipe for this transcontinental pipeline.

Japan is one of Russia's neighbors and we have had a cooperative relationship for many years. With regard to natural gas in Northeast Asia, Japan will continue to be a destination for exports of Russia's energy resources. The questions of what route will be selected and whether these resources will be supplied via a pipeline or as LNG will be determined from both the economic and technical perspectives, while evaluating such factors as stability, potential and economic efficiency.

Various problems relating to tariffs are emerging, but what we have understood from our experience of delivering natural gas to the countries of Europe over the last 30 years is that if a single, total system is created, it will be impregnable, even in the face of a major incident, such as the collapse of the Soviet Union. Some kind of integrated system will also be needed in Northeast Asia. This is the significance of creating a unified system, rather than depending on a single oil or gas field.

Furthermore, with regard to Japan, there is a project aimed at creating a huge gas-chemical complex, i.e. a complex for gas processing. Eastern Russia is extremely rich in natural gas, but it lags quite far behind other areas in terms of economic development. In order to develop the economy of Eastern Russia, it will be necessary to develop the requisite environment for manufacturing high added-value products, rather than just supplying the raw material. By doing this, confidence will be instilled in the people of Sakhalin Oblast, Khabarovsk and Primorski krais and other regions. It is precisely such projects that will lead to regional development, which will in turn lead to the ability to provide a stable supply of energy resources to neighboring countries, including Japan. Japan is home to advanced technology and abundant experience, so we sincerely hope that Japan will bring this technology to bear in these projects and will also cooperate with Russia on the financial side.

Takehiro Togo

It was pointed out that a unified system was created for exports to Western and Eastern Europe and that this was sufficient even to withstand the collapse of the Soviet Union, and I would like to mention one thing in relation to this. The last pipeline, called "Progress", was constructed on the basis of a process under which some Eastern European countries contributed services and materials, and were able to import gas as payment for this. As the vision for supplying gas from around 1990 was developed during the Soviet era, I was impressed that the Russian government protected this agreement even after the collapse of the Soviet Union and continued to supply gas on the basis of this contract until 1998.

Vladimir Ivanov (Chairman)

I would like to ask two questions concerning Panel Discussion II The Pacific Oil Pipeline and Energy Security. Firstly, I would like to ask Mr. Kayama and Mr. Saenko what conditions must be put in place in order to ensure that large-scale, long-term projects such as that focused on the pipeline from Eastern Siberia to the Pacific Ocean can become trilateral rather than bilateral projects, and whether there is potential to include other countries. Please feel free to speak from your personal perspectives.

Secondly, I would like to ask Mr. Kumabe about his thoughts concerning the fact that the Japanese side seems to be of the opinion that the Russian government's position on the provision of finance by Japan is inconsistent, as it says that it wishes to receive low-interest long-term financing, but does not want to provide government guarantees.

Hirobumi Kayama

Firstly, I would like to state the Japanese government's position. With regard to the question of which pipeline route will be chosen, as the company involved is the state-owned Transneft, the Russian government will determine the route, and the Japanese government has held talks concerning what kind of cooperation it can undertake in order to ensure that the decision taken is the one that is most beneficial to Russia. If, as a result, as much oil as possible is supplied to the Pacific coast, it would not only be Japan that would benefit; oil would also be supplied to China, the ROK and the Pacific Rim region, including the US. In this sense, although there are benefits for the recipients, this project is the most strategically significant one for Russia, as it will give it the means to supply its strategic resource, oil, to more countries. In any case, in the long term, delivering as much oil as possible to the Pacific coast will undoubtedly be in the interests of both Japan and Russia.

Thereafter, discussions by experts will be required concerning such issues as what kind of order will be adopted and how to implement the things that should be implemented in the long term.

If I were to presume to venture a personal opinion here, I would have to say that pipeline construction and the development of the oil that will flow through it is a chicken and egg situation, so to speak: if there is no route for exporting and selling oil via a pipeline, nobody will want to participate in upstream development. On the other hand, if upstream development does not take place and oil does not flow through the pipeline, generating tariffs, nobody will promote pipeline projects. How this chicken and egg situation is resolved will be the key to the successful implementation of this project.

If a pipeline route is quickly chosen that only takes into account a limited region or a limited range of people with the motivation to buy, there will surely be a deceleration in the speed of oil development and economic development in the Eastern Siberia and Far Eastern regions, which have great potential. Unless the certainty that more oil will be supplied to more open markets is conveyed to those involved in the upstream oil development business, it will not lead to the development of Eastern Siberia, which will benefit not only Russia and Japan, but also Asia as a whole. It will be vital for Japan and Russia to cooperate and continue expert-level and practical discussions at their current rapid pace.

Kensaku Kumabe

Before answering this question, I would like to talk about how JBIC views the question of risk in Russia. At the beginning of the 1990s, Russia was in chaos, so JBIC adhered to the line that it could not be involved in projects without guarantees from the Russian government. However, part of the way through the decade, JBIC provided a loan for a sea-bed gas pipeline to Turkey in the form of structure finance, using the money Russia received from supplying gas to Europe as collateral. There was a period when Turkey did not purchase the amount of gas that it had initially committed to buy, so if project finance had been used, involving paying back the loan using money received for exporting gas to Turkey, then Russia may well have fallen into arrears with its repayments.

With regard to the Sakhalin projects, JBIC decided that income from the oil and gas developed in Sakhalin should be used to repay the loan. In addition, private sector companies are providing risk corporate finance and loans that take into account the risks relating to Russian banks. The scale of loans to companies and banks is small and there are no large-scale loans, with those provided being worth tens of millions of dollars.

Various discussions are taking place concerning methods of financing the Pacific pipeline. Russia says that this project has an extremely high strategic value and is worthwhile for the country as well. It says that it is placing a great deal of emphasis on it because it will contribute to the development of Russia's regions and because Russia is trying to diversify its export sources, but if this is the case, would it not be better for the Russian government to provide more preferential measures with regard to this project? According to media reports, the president of Transneft has categorically denied that he has submitted a request to the government to use part of the transit tariff. Although Russia says that there are advantages for both sides, it would be an error unilaterally to demand that the Japanese side make concessions in this area. Financing is being discussed in expert meetings and, although I am unacquainted with the details, the amount and scale are likely to be immense; if government guarantees were provided, the cost would naturally decrease and the project would be more profitable.

However, although Mr. Kayama suggested that it is a case of "Which comes first, the chicken or the egg?" I do not think that it is at that stage yet. The question of whether there really are any reserves in the first place is the one to which people would most like an answer. If there are reserves and therefore there is oil to flow through the pipeline, the pipeline will be built. However, the biggest problem lies in making decisions concerning finance when we still do not know whether there are sufficient reserves to supply a pipeline. I would like a proper feasibility study to be carried out first of all; I believe that the financing problem will be easily resolved once the results of such a study emerge.

Vladimir Saenko

It is not the case that I do not understand the fears with regard to the Russian side. However, the Ministry of Natural Resources has opened up to international tender a number of new programs relating to the development of production areas in Eastern Siberia. For the first time in many years, funds will be provided from the Federal Government budget for mineral exploration projects in Eastern Siberia. In other words,

projects that were previously no more than regional activities are now being transformed into large-scale mineral exploration projects with Federal Government protection in the Sakha Republic and Krasnoyarsk Krai, on the basis of plans based on long-term prospects.

Promising reserves of oil condensate were confirmed by mineral exploration work conducted during the Soviet era, with particularly promising reserves being discovered in Talakanskoye and Chayandinskoye in the Sakha Republic, Yurubcheno-Tokhomskoye, Kuyumbinskoye and Vankorskoye in Krasnoyarsk Krai and Kovyktinskoye and Verkhnechonskoye in Irkutsk Oblast.

Looking at the situation objectively, the issues of mineral exploration and geological surveys in the aforementioned production areas involved work that entailed a great of risk if carried out before any decision was made concerning the pipeline, but the situation is now changing slightly. Resource users will continue to carry out geological surveys and mineral exploration.

As I have already said, the Ministry of Natural Resources will hold an auction in 2005; as you are doubtless aware, crucial amendments to the Subsoil Resources Law were made last year and a licensing system for development and exploration was adopted. In previous auctions, when carrying out mineral exploration, companies had to run the risk of their tender not being accepted, but as a result of this amendment to the law, they can now avoid such risks. According to the Russian government's long-term program, the money being provided for geological surveys is not limited to Western Siberia and the European side of Russia: a considerable amount will also be allocated to Eastern Siberia and the Far Eastern region. The money ploughed into these regions will enable large-scale mineral exploration and geological survey work to be conducted and significant results in confirming reserves can be expected.

Tatsuhiko Kasai (Japan Institute of International Affairs)

There is talk that the Pacific pipeline will be a profitable project, but I do not properly understand the form that it will take. It would probably be best to ask someone from Transneft about this, but is the plan for Transneft to build the pipeline and for Japan or somewhere else to finance it, or is it planning to establish a separate company which would then obtain a loan from somewhere and build the pipeline?

Hirobumi Kayama

It would probably be better for someone from the Russian side to answer this, but from the Japanese side, we are discussing matters on the basis of what cooperation we can offer given that it is most likely that Transneft will be the main player in implementing the project.

Vladimir Saenko

Russia currently has plenty of funds available for investment. Since the financial crisis in 1998, major changes have taken place in the investment market. For instance, investment accounting for $10 billion of domestic oil production has been made in oil companies. Moreover, there is even sufficient scope to purchase other foreign assets. I would like you all to understand this aspect.

Another aspect relates to the attraction of Japanese financial institutions; these could well be incorporated smoothly in the sense of recouping costs. If a balance can be achieved between conditions, costs, actual fixed assets and other factors, it could be very effective. Money invested by Japan and other players could well be used effectively.

Nobuyuki Higashi

Chief Representative for Energy Resources, Japan Bank for International Cooperation

Yesterday, Mr. Kumabe said that, "the problem of reserves and pipeline financing is not a chicken and egg relationship" and I basically agree with him. With regard to this, Mr. Saenko said, "Russia is already confirming its reserves" and "Russia has money available for investment". I am sure that Mr. Saenko's comments are of profound significance, but if a layperson were to hear that part alone, it might give rise to misunderstandings, with such a person asking, "If Russia has both reserves and money, what kind of support could Japan possibly provide?" and "Why doesn't Russia implement the project using its own resources?" The context and content of the meaning of the words "reserves" and "money" is extremely broad, but it is necessary to discuss them in precise terms.

As you are doubtless aware, not only is it difficult even for experts to gain an accurate picture of oil and gas reserves, but there is also a variety of definitions. Discussions involving figures showing the quantity of reserves are important, but fundamentally their key significance lies in their appeal to investors, in whether they provide ample data for investors to make a judgment concerning whether or not to invest their own risk money in a project. Reserves must be discussed in a way that will enable investors to make a judgment concerning whether the conditions are in place for them to make a profit, i.e. whether the reserves have business potential. This includes not only the quantity of physical resources, but also, for instance, contract conditions, the development framework and recoverable reserves, as well as reserves in the sense of resources that will make a project feasible in cost and business terms, and the question of whether a PSA will be used.

With regard to the word "money", the price of crude oil continues to be high at present, and Russia has become an extremely affluent country, including in terms of its foreign currency reserves. However, the problem is whether Russia has the financial wherewithal to provide the risk money for mineral resource development itself (either provided by state-owned or private sector companies). Or does it plan to solicit investment from a wide range of foreign sources? The nature of money differs: for example, JBIC provides loans and overseas financial cooperation, but it is certainly not an investor of risk money. It is necessary for experts to separate such discussions adequately.

With regard to the types of finance, we have already heard discussion of whether it could take the form of government guarantees, project finance or structure finance, but these are all discussions about methods of financing the project. However, at the same time, there is also the question of the purpose for which the finance will be provided: will it be provided for development, or for a situation in which someone wishes to implement the project? In other words, generally speaking, in the event of the state developing infrastructure as a form of public sector investment, JBIC's basic stance would be to consider providing the government with a loan or to provide a loan backed up with a government guarantee, as a way of supporting that state. Naturally, this would be money provided from one government to another, so the conditions would be

good and the profitability of the project would improve.

At the same time, there are BOT (build-operate-transfer) schemes such as those that have recently been implemented in Asia. This is a so-called project finance-type method in which there is a division of labor between the government and the private sector; governments wish to make use of the dynamism of the private sector in infrastructure development, so rather than the government taking care of the loans required for this, its private sector partner uses its own resources to procure finance. For example, with regard to the question of what kind of finance will be provided for infrastructure in the form of the Russian pipeline, if the type of framework to be used and the division of labor among the government and the private sector are clarified, the road map for the finance procurement method will emerge naturally. Thenceforward, issues such as what to do about collateral and interest are just technical matters.

From our experience with the Sakhalin projects as well, in the logic of the free market and capital, amidst the pursuit of profits, the question of how to assemble the business legally provides the strongest impetus for promoting a project. In the event that various problems emerge in this process, the government's role is to play a complementary role in developing an environment in which business can be done smoothly.

In the development of Siberia and Far Eastern Russia as well, in light of the balance between the role of the government and the dynamism of the private sector, if the aim is to cultivate industry that is rich in variety, including not only oil, but also in the future natural gas and the industrial refineries proposed by our Russian counterparts on the first day of this Forum, optimal industrial bases or supply chains should be built not only in Japan, but also in all the other countries of Northeast Asia. It is hoped that progress will be made with major blueprints and intergovernmental discussions, but it is necessary to provide the private sector with the appropriate requisite information and for the government to develop guidelines that facilitate private sector participation, as well as developing proper legal frameworks. It would be preferable if, in doing this, each country's strengths were combined in order for the private sector to make the best use of this region's latent resources and promote industrial development.

During the Soviet era, there was a committee called the Joint Japan-Soviet Committee and large-scale projects progressed on the basis of governmental guarantees. Since the collapse of the Soviet Union, the Japan-Russia Business Cooperation Committee has selected a variety of projects, but so far none have achieved coordination between the central and regional governments of Russia and securing government guarantees has been a problem, so loan projects have not been progressing. Sakhalin II went well using the project finance method, but one major factor behind this was the fact that its products - oil and natural gas - generate cash flows of foreign currency on international markets. With regard to Sakhalin II, another major element was that Russia put in place the legal framework in the form of PSAs, so the foreign investors were able to carry out the project with complete peace of mind. Public institutions in Japan, Europe and the UK (JBIC, EBRD and OPIC) cooperated in providing the finance for this project.

Transport projects, including those involving electricity, water supply and pipelines, tend not to generate foreign currency themselves, so it is often difficult to set up a

security package. For instance, in many cases tariffs are determined according to the rules of the regulatory authorities in the country concerned, but the side providing the finance must devise ways of confirming that they will not change in the future. With regard to cross-border pipelines, the situation differs according to who the investor is: if it is a public works project, sovereign finance (in other words, the government takes out the loan and provides guarantees) is often used, while if it is the private sector doing the investing, project finance can be considered. Moreover, the structure of the finance will differ depending on whether the pipeline project is conducted independently (called "unbundling" in Europe), with tariffs being used as income, or whether it is thought of as a project integrated with upstream and/or downstream sectors.

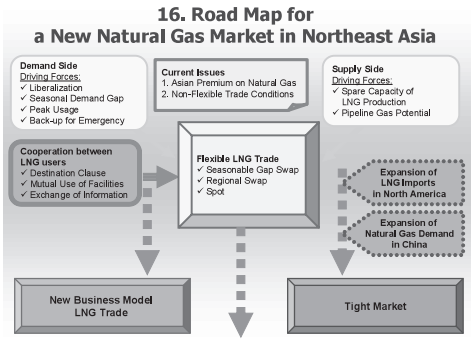
China, the ROK and Taiwan were invited to participate in a workshop called the Natural Gas Forum, which was held in Tokyo in January 2005; in light of China's decision to begin importing LNG, a major theme at this workshop was the necessity of strengthening collaboration among LNG consumers in East Asia. The Asian premium in the field of oil is famous, but the price paid by East Asian countries for natural gas is around $1 higher per MMBtu (million British thermal units) than that paid by European countries. This is not $1 higher in a price in the $30-40 dollar range, as in the case of oil, but $1 higher in a price of around $3-4, so the Asian premium in natural gas is a bigger problem than that relating to oil. There is a variety of problems behind this, but the idea that if countries cooperated a little, they might be able to win better conditions is gathering momentum. For example, in the case of the ROK, there is considerable demand for heating in the winter, with winter demand three times higher than summer demand. On the other hand, summer is the peak in Japan, so if these two countries could supplement each other's seasonal gaps, more efficient gas use could become possible.

In the case of natural gas, particularly LNG, discussions are currently underway, focused on the question of how to overcome such problems as long-term contracts and the fact that buyers cannot divert part of their supply to other buyers, as well as the issues of how to achieve more flexible contracts, how to expand flexible forms of trading (swap and spot transactions), and how to create an environment that is more advantageous for consumer countries.

Figure 1 is a road map for a new natural gas market in Northeast Asia. With regard to LNG, it is thought that, with demand in China and North America increasing, the Asian gas market will also become tighter, but at present it is a buyers' market and there are moves to stimulate competition within the market and intensify competition between LNG suppliers in each country. In doing so, there is a possibility that the price, which is higher than that paid in the West, may be improved to some degree.

Against this background, with regard to the question of how a Siberian natural gas pipeline will be positioned, it will have to be made competitive with LNG. However, in the broader context, the pipeline would be infrastructure that would benefit the whole of Asia; as it would ensure long-term supply capacity at a time when the Asian gas market is becoming tighter due to increases in North American and Chinese demand, cooperation between the countries of the region in its development would be vital in building a cross-border gas pipeline.

Figure 1



Evgeniy N. Galichanin

Chairman, Subcommittee on the Oil Complex
Committee on Energy, Transportation and Communications, State Duma

The word "law" has a fundamental ring to it everywhere, not only in Russia, but in the future, it will be necessary for Russia to carry out large-scale root and branch reforms of the legal system. One problem that must be resolved relating to the old Soviet Union and the Russia of today is the fact that some parts of the reforms undertaken since 1991 have not kept up with legal developments. In recent years, various problems have been pointed out in the development of laws relating to the energy sector as a whole and to oil-related issues; there are many deficiencies in existing laws and there is a host of problems that governmental and legislative bodies should tackle.

The Committee on Energy, Transport and Communications participated in the compilation of documents relating to the formulation of the energy strategy, and this is the basis of its activities. The most important issue within its remit is the gas sector. This is because it is the gas sector that is a key element in the country's long-term fuels and energy strategy.

The course of gas sector development involves tackling the following issues:

- Overcoming the imbalance between the development process and marketability of the gas sector
- Revising the format and methods of regulation by the state
- Abolishing administrative regulation
- Expanding the operational scope of the market mechanism

The following issues are being tackled with regard to the development of laws relating to the liberalization of gas:

- The phased abolition of gas market regulation by changing the set price for each consumer
- Ensuring access rights to pipelines for all producers
- Granting export rights to all gas producers
- Using gas as motor oil

- Using oil gas
- Refining heavy hydrocarbons
- The necessity of resolving the problem of the state registration system for low-pressure pipelines

Specifically, existing laws will be partially revised (such as the Law on Gas Supply by the Russian Federation) and new laws will be enacted.

Lawmakers are attaching importance to the amendment of the Law on Natural Resource Use. Mr. Saenko touched upon the issue during his remarks on the first day, but it must be understood why legal reforms are necessary. This law covered everything relating to resources, including the development of production areas and conditions relating to fees for the use of land. However, the first round of reforms not only made it possible to grant licenses in desperation, but in the process of applying the laws, some even exceeded the scope of the provisions. At present, the taxation of resources, for instance, is determined by the Taxation Law, but amid this kind of situation, it could be advisable for the Resources Law to prescribe resource uses and stipulate a state-run management and operation licensing system. In February 2005, this law was submitted to the State Duma and is currently being discussed by an expert committee. The legislature has for some years shown a particular interest in oil operation regulations.

In advanced oil-producing countries, operations relating to oil gas are prescribed in special laws. Unfortunately, Russia does not yet have such laws. Amendments relating to the management of information concerning drilling and production, security, and compliance with environmental protection regulations are required. Furthermore, in the event that multiple resource users engage in development in a single location, it will be necessary to stipulate regulations, including those concerning the joint use of infrastructure. In fact, there are too many legislative amendments required to list them here. Some time ago, a bill covering all the problems that had emerged at that time was submitted, but it was not supported by former President Yeltsin, so the formulation of new bills is currently being promoted. It is likely that several bills will be examined simultaneously.

The bill concerning trunk pipeline transport has reached a comparatively advanced stage. Actually, this bill will directly respond to the problems raised at this Forum, particularly the queries mentioned by Mr. Higashi. Russia's existing pipelines were all built during the Soviet era. Capital integration and a vast amount of money, including state capital, are necessary for large-scale construction projects, such as multinational pipeline networks. The lack of legislation relating to this problem is an impediment, but this issue has not received much attention. As you are doubtless aware, there is a powerful monopoly called Transneft, but such questions as who will obtain access rights to the pipeline in what way and on the basis of how much equity participation, and who will determine tariffs and using what method have not yet been answered.

Furthermore, the problem of an oil quality bank must be resolved. Currently, Russian oil gathered from various production areas is mixed together, but this kind of situation must be avoided. Producers incur various costs. There is also the problem of oil quotas.

Recently, the law concerning land issues entered into force at long last. The issues of how land is allocated and how the profits earned by federal entities through the territory of which the pipeline passes are coordinated must be resolved by the Law on Pipeline

Transport. The drafting of the bill has been completed and it will undergo the second round of scrutiny in April. This law is particularly important to the construction of the Pacific pipeline.

To be honest, the Committee on Energy, Transport and Communications was opposed to the Kyoto Protocol. It agreed on the basis of a number of conditions, but the details can only be understood by experts. What is certain is that the Kyoto Protocol is an important agreement and has been signed and approved. However, a rapport has yet to be achieved with regard to the Energy Charter Treaty. Work is progressing, but at this point in time the Committee on Energy, Transport and Communications is dragging its feet with regard to the Energy Charter Treaty.

The continuing collapse of Russia's oil industry and the outflow of money to foreign countries have already ceased. The integration of domestic social capital, particularly private sector capital, has intensified and the country has developed financial elbowroom. Furthermore, the competition principle is taking effect. Domestic oil capital cannot be procured without competition in the positive sense of the term. The same applies to overseas capital procurement.

Yukio Endo

General Manager, Higashi Niigata Thermal Power Station
Tohoku Electric Power Co. Inc.

Through the development and introduction of the latest technology, Tohoku Electric Power has for many years been striving to achieve large-scale power generation with a low environmental burden and at low levels of fuel consumption.

The company generates, transmits and supplies electricity to the northeastern (Tohoku) region of Honshu, the largest of Japan's four main islands. The region that falls within its remit covers about 20% of the total surface area of Japan and is home to around 10% of the total population of Japan. The region's gross industrial output in 2001 was approximately ¥42.5 trillion, which accounts for about 9% of Japan's total industrial output.

Higashi Niigata Thermal Power Station (TPS) is located in Niigata Prefecture, where demand for electricity is the highest of all prefectures located within Tohoku Electric Power's supply area. With a total power generation capacity of 3,816 MW, it is the company's largest TPS. It has eight generating units, four of which are conventional thermal power plants (CTPP) that were formerly oil-fired but have been converted to run on natural gas. Even now, if there was a shortage of natural gas, they could still be run on oil. The remaining four units, which include one still under construction, are gas combined-cycle power plants (CCPP), about which I will now give a more detailed explanation.

In CTPPs, fuel is burned in boilers and the resultant heat is used to generate high-temperature, high-pressure steam, which makes the turbines rotate, thereby generating electricity. In contrast, in CCPPs, fuel is injected into and burned in highly compressed air,

bringing about rapid thermal expansion, which makes the gas turbines rotate and generate electricity. Furthermore, the heat from the high-temperature exhaust emissions from gas turbines that have finished operating is used to generate steam, which is then used to rotate steam turbines. In other words, CCPPs use both gas and steam turbines to generate electricity.

During the 1980s, it became necessary to construct more power generation facilities, in response to growing electricity demand. This was in the immediate aftermath of the oil crises, at a time when there were highly publicized calls for energy conservation and increased energy efficiency. Against this background and with the desire to devote themselves to developing cutting-edge technology, our engineers directed their attention towards CCPP, which has the advantage of being able to respond quickly to changes in power demand, without emitting such atmospheric pollutants as sulfur oxides and soot. Another factor behind the decision to switch to CCPP was the theoretical evidence that suggested that it would achieve higher thermal efficiency than CTPP by raising the combustion temperature.

Having decided to develop a high-capacity, high-efficiency CCPP, in July 1980 we began a technological development project in collaboration with the turbine manufacturers. On 21st December 1984, Higashi Niigata TPS's Unit No.3 began operating as the world's first CCPP. The following year, in recognition of our achievements, we were awarded the Prime Minister's Prize, the top prize in the Industrial Technology Awards.

Figure 1 shows the operational performance of Unit No.3 since it began operating. Its thermal efficiency is about 44%, in high heat value terms, or about 49% in low heat value terms, which is around 4% higher than the most advanced CTPPs at the time that it was built. The power generation usage factor is consistently above 70% and the unit is still running well.

Following the success of Unit No.3, the use of CCPP quickly became widespread. In Figure 2, the horizontal axis represents turbine inlet gas temperature, while the vertical axis represents thermal efficiency; this graph shows that efficiency increases in direct proportion to turbine inlet gas temperature. In 1988, four years after Unit No.3 began operating, the turbine inlet gas temperature of the most advanced CCPP rose to 1,300℃, higher than the 1,150℃ achieved by Unit No.3.

Figure 1

図1 Operation History of Higashi-Niigata Unit No. 3

		1985	1990	1995	2000	2001	2002	2003
Operation Hours (hr)		8185	8760	8700	8681	8760	8462	8784
Plant Loss Factor (%)		1.6	1.4	1.5	1.4	1.5	1.5	1.6
Power Factor (%)		56.8	77.5	75.4	74.2	78.2	76.8	73.0
Gross Thermal Efficiency (%)	HHV	43.32	44.20	44.06	43.83	43.43	43.83	43.50
	LHV	47.52	48.62	48.46	48.21	47.77	48.21	47.85

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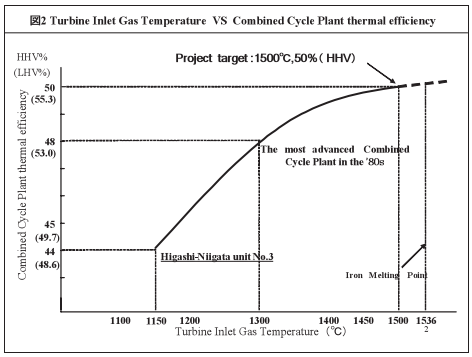
Figure 2

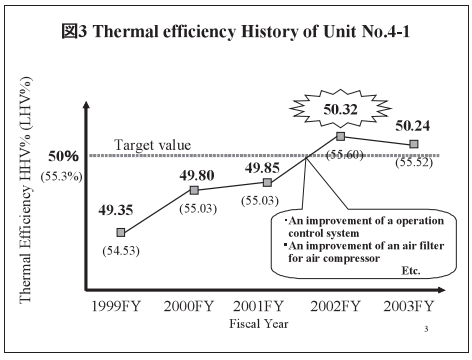


Taking the long-term perspective, Tohoku Electric Power embarked upon a joint research project with turbine manufacturers, in order to develop a second-generation CCPP, with the intention of further developing the technology cultivated in the development of Unit No.3. At a time when the top turbine inlet gas temperature was 1,300℃, the main goal was to raise the turbine inlet gas temperature 200℃ to 1,500℃ and to achieve thermal efficiency in excess of 50%. 1,500℃ is close to the 1,536℃ melting point of iron, so our plans were thought to be foolhardy, but we threw ourselves into our joint research project, under the slogan "Making the dream reality: achieving a turbine inlet gas temperature of 1,500℃ and thermal efficiency in excess of 50%." Moreover, 50% was the high heat value level; this is equivalent to around 55% in low heat value terms, the yardstick generally used in the West.

The joint research project began in May 1988 and came to a successful conclusion in March 1995. Subsequently, in April 1996, we began constructing CCPP Unit No.4-1. Construction of the actual unit involved the application of the most up-to-date technology, so many challenges arose during the process, but it began operating on 8th July 1999, as a CCPP with an output of 805 MW and the world's highest thermal efficiency level. In recognition of our achievements in developing Unit No.4-1, in 2000 we were awarded the Prime Minister's Prize in the Industrial Technology Awards for the second time.

In Figure 3, the horizontal axis represents the year and the vertical axis represents thermal efficiency since Unit No.4-1 began operating. As is evident from this graph, when the unit began operating, the average thermal efficiency through the year was a fraction over 49%, just below the target level of 50%. Moreover, although we had technically achieved a turbine inlet gas temperature of 1,500℃, our primary focus in the operation of the unit was on safety, so the actual operating temperature was 1,450℃. Even after the unit began operating, we carried out small-scale improvements and in 2002 we were able to break through the 50% annual average thermal efficiency barrier for the first time. We are delighted that we have been able to realize our "dream of 50% thermal efficiency" in its true sense.

Figure 3



CCPPs have many advantages, such as the fact that a relatively small amount of space is required to site them, it is easy to stop and start them so they can respond easily to changes in electricity demand, and they are a clean source of electricity as they do not

emit such pollutants as sulfur oxides and soot. However, their biggest feature is their high thermal efficiency. Figure 4 compares CTPPs (gas-fired) with CCPPs (Unit Nos.3 & 4-1). Comparing a CTPP with Unit No.4-1, there is an 11% difference in thermal efficiency, which represents an annual decrease in LNG consumption of 190,000 tons. This is equivalent to around two years of consumption by Niigata City (based on its pre-merger population of 570,000). Moreover, high thermal efficiency means that electricity can be generated using less fuel, so Unit No.4-1's emissions of CO_2, which is a major factor in global warming, are 22% lower than those of CTPPs.

In Figure 5, the horizontal axis represents the year, while the vertical axis represents thermal efficiency; this graph plots the thermal efficiency of Tohoku Electric Power's power generation units. As a result of a variety of ongoing improvements to our CTPPs, their thermal efficiency is improving; combined with our CCPPs, this has improved our thermal efficiency dramatically.

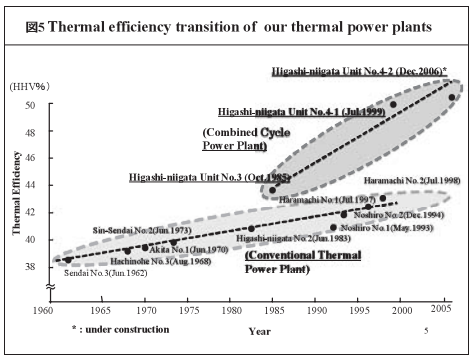
Figure 4

図4 Advantages of Improved Thermal Efficiency

		Higashi-Niigata		Conventional LNG PP
		Unit No.4-1	Unit No.3	
Thermal Efficiency(%)	(HHV)	**50**	44	39
	(LHV)	**55**	48	43
Annual LNG Reduction (ton／year)		**190,000**	130,000	BASE
Annual CO_2 Reduction (%)		**22**	11	BASE

4

Figure 5



At present, Unit No.4-2 is being built at Higashi Niigata TPS. This unit is basically built to the same specifications as Unit No.4-1, but we want to achieve thermal efficiency considerably in excess of 50% by achieving an actual turbine inlet gas temperature of 1,500℃ in operation, something that we have not been able to do with Unit No.4-1.

Electricity is infrastructure that is vital to society and people's livelihoods, but as the finite nature of resources becomes apparent, we face demands from society to lower the burden that we impose on the environment. Consequently, as someone involved in the electricity business, I would like to work on achieving not only a stable supply of electricity, but also further improvements in thermal efficiency.

Vladimir N. Metelkin

Acting Russian Trade Representative

What is required for the efficient development of natural gas resources in Eastern Siberia and Far Eastern Russia is to establish new demand by developing new

technologies. New technological developments and products include dimethyl ether (DME), which is a synthetic liquid fuel made from gas, and gas-to-liquid (GTL) technology.

DME is an extremely clean form of energy: as it synthesizes a number of hydrocarbons and does not contain sulfur oxides, the burden that it imposes on the environment as a result of combustion is very low. Furthermore, as it has low toxicity, it is highly suitable for use as a fuel in cars and other forms of transport. In particular, it can be used as a substitute for diesel. In addition, it can be used as a substitute for butane, which is a form of energy conventionally used in homes. It can also be used in fuel cells for power generation, or as an aerosol propellant.

DME also has the advantage that its production cost is significantly lower than that of LNG. Furthermore, DME has a boiling point of -25℃ and vaporizes easily at 6.1 bars of pressure, so it is easy to store and transport. Incidentally, LNG has a boiling point of -161.5℃ and requires pressure of 246 bars to vaporize.

Japanese companies have the latest technology that will lower the cost of producing DME. In addition, Japanese companies such as NKK Corporation and JFE Holdings also boast cutting-edge technology in the field of GTL. DME production technology was originally developed in 1989, and was made possible by producing methanol from natural gas. Initially, it was highly inefficient, but in 2000, a pilot plant with a production capacity of 5 tons per day was built in Kushiro. Various improvements were subsequently made and the production capacity was raised to 100 tons per day.

According to some forecasts, the DME consumption volume in Japan will increase to 20 MT annually over the next ten years. Of this, it is hoped that 15 MT will be consumed as a substitute for fuels used in thermal power stations, i.e. coal, heavy oil and LNG. Furthermore, it is inferred that 4-5 MT will be consumed as fuel for cars. According to data that I have obtained, a consortium involving JFE Holdings, Itochu Corporation and other companies is making trucks that run on DME. Moreover, with regard to this, I have heard that the consortium is planning or is already carrying out test runs from Yokohama to Niigata and from Niigata to Tsukuba. In order to realize this plan, the construction of fuel stations is required. JFE Holdings is currently considering sites where it could build its first plant, in order to increase investment efficiency and lower associated risks. The candidate sites are located outside Japan, in such countries as Qatar, Australia and Malaysia. In addition, it is thought that DME would be exported from this site to Japan in the future.

In order to promote the use of DME in Japan, as well as its production, storage and transport, a DME Forum was established and market development is considered in its ten-year plan. As part of the Forum's activities, the 1st Asian Conference on DME was held in Tokyo on 3rd December 2004, with the participation of experts from Russia, China and the ROK. Representing Russia, the President of Dimethyl Eco of Moscow gave a presentation. According to this report, research into and use of DME production technology is also flourishing in Russia. What is most important for Russia is the use of DME as an environmentally clean motor fuel. In particular, a program promoting the use of DME in Moscow's trams and other transport networks has been established under a decision taken by the Moscow City Government. Furthermore, in Russia, DME is being considered for use as an aerosol propellant, as well as being a potential fuel for residential use and a refrigerant for use in refrigerators.

Since 2000, the Trade Representation Office of the Russian Federation has been studying a project involving the construction of a DME production plant in Russia and the export to Japan of the clean fuel produced there. Currently, we are at the stage of seeking a long-term partner. A great deal of natural gas is required in order to produce DME. For example, according to the data I have in front of me, in operating a single plant, 3 MCM of natural gas per day produces 250 tons of DME.

In 2004, the Trade Representation Office of the Russian Federation proposed a "Protocol of Intention" to the former Energy Ministry of Russia. The aim of this was to conclude a protocol as a "joint activity" between Japan's Ministry of Economy, Trade and Industry (METI) and Agency for Natural Resources and Energy, and Russia's Ministry of Energy, and to develop a cooperative project focused on DME production by using oil and gas condensate fields in Eastern Siberia. However, the outcome of this proposal is uncertain at this point in time.

GTL is being called "the fuel of the 21st century". The 16th February 2005 edition of the Asian Wall Street Journal carried an article entitled "Construction of a Large-Scale Plant to Produce GTL From Natural Gas is Progressing in Qatar". Investment in this project is being provided by ExxonMobil, Royal Dutch Shell and ChevronTexaco, and totals $20 billion. The first GTL is due to be delivered this year. Qatar plans to produce 750 million bbl/d of GTL by 2010. The construction of the plant is taking place in anticipation of a surge in demand for diesel in industrially developed countries; for example, in Europe, half of all new cars use diesel. Qatar has an abundance of natural gas and its reserves total 27 TCM, accounting for 14% of total natural gas reserves around the world. In the future, Qatar could become a supplier of this clean vehicle fuel. Today, the price of one barrel of GTL is $14. In light of the current price of oil and other considerations, it is an extremely promising product.

In the future, if it becomes possible to use Siberia's natural gas in an even more advanced form, Russia will be able to respond to the growth in worldwide consumption, leading to the resolution of various problems. It is hoped that the production of DME as a substitute for the diesel fuel and gas that are currently used will spread throughout Russia. It is hoped that the skillful use of this new source of energy and fuel will lower the environmental burden incurred around the globe.

Kazuhiko Ohashi

General Manager, Energy Facilities Engineering, Nippon Steel

Each year, significant damage is being done around the world by such problems as flooding, droughts and rising sea levels, all of which are thought to be attributable to global warming. Accordingly, advanced countries are being driven to secure an energy source that emits few of the greenhouse gases that are the principal cause of this phenomenon. With the aim of achieving a shift in around 2030 to a society based on hydrogen, which is a renewable energy, advanced nations around the world are engaged in intense competition in the field of research and development. However, it is thought that dependence on natural gas will increase considerably in the transition period until

then. This is one picture of the hydrogen-based society envisaged by METI.

The method that Japan has used hitherto for importing natural gas and oil is extremely unstable, due to its reliance on the Middle East, so natural gas resources in Northeast Asia should be used efficiently, in order to ensure energy security in the 21st century; this would be the first step towards the building of a Northeast Asian Energy Community. In order to do this, the construction of a Northeast Asian natural gas pipeline network is essential; since the beginning of the 1990s, this company has been conducting joint research with the various countries involved, including Russia, through our activities as part of the Eastern Siberia Natural Gas Subcommittee of the Keidanren's Japan-Russia Business Cooperation Committee, the Asian Pipeline Research Society of Japan and its sister organization the Northeast Asian Natural Gas Subcommittee, and the Northeast Asian Gas and Pipeline Forum.

In building the Northeast Asian natural gas pipeline network, many people have pointed out that it will be important to give sufficient consideration to the natural environment of Lake Baikal, a World Heritage site located close to the natural gas reserves, as well as to the ecosystem of Eastern Siberia and the lifestyles of the local populace; moreover, ensuring an adequate technical response to the broad expanses of permafrost and seismically unstable zones that the pipeline will cross will be vital. JOGMEC has commissioned us to carry out various ongoing research activities, working in partnership with Professor Edward Yershov of Moscow State University, the world's foremost expert on geocryology, Professor Masami Fukuda of the Hokkaido University Institute of Low Temperature Science, and specialist consulting firms in North America. Moreover, commissioned by the government and with Emeritus Professor Masaru Hirata of Tokyo University as the research director, we worked in partnership with Professor Fukuda of Hokkaido University to lay a full-size pipeline in a permafrost zone on the outskirts of Fairbanks in Alaska, and carried out research and development relating to the optimum design method. Furthermore, in response to a request from ExxonMobil and Mitsui & Co. Ltd., we succeeded in developing an ultrahigh-strength line pipe material, called API-5LX120, which was far beyond the bounds of what was considered to be common technological knowledge. Moreover, in February 2004, we conducted experimental engineering work in Northern Canada and it was widely reported in newspapers and other media that the project was endorsed by Canada's regulatory authorities. As a result of this success, it became possible to increase the transport pressure dramatically by reducing the diameter of the pipe, and an analysis by ExxonMobil has revealed that this had contributed to a $100-200 million reduction in costs.

Our overriding objective is to achieve the ultimate non-polluting sustainable society, through the manufacturing of hydrogen using the abundant hydropower in Siberia and Northeastern China, the world-class wind power available in Kamchatka and the northern islands, and wind and solar power from Northern China and Mongolia; the transport of hydrogen using the Northeast Asian natural gas pipeline; and the spread of cogeneration using fuel cells. Accordingly, in collaboration with Evgeny P. Velikhov, President of the Kurchatov Institute in Moscow, as well as teams in the US and Canada, we have carried out research into hydrogen manufacturing using wind power in Far Eastern Russia and North America, and methods of transporting this hydrogen by pipeline; in addition, we submitted a proposal at the time of the Okinawa Summit in July 2000, recommending

that the four northern islands be made a renewable energy base jointly managed by Japan, the US and Russia. Subsequently, we submitted a paper to the 22nd World Gas Conference, which was held in Tokyo in June 2003, the first time that it had been held in Asia; this paper was awarded the prize for best paper.

We would like to continue to strive to create a natural gas pipeline network in collaboration with the other countries involved, from the perspective of science and technology, with the ultimate aim of building a Northeast Asian Energy Community.

Valeriy A. Kryukov

Institute of Economics and Industrial Production
Siberian Branch of the Russian Academy of Sciences, Novosibirsk

The issue of the eastern pipeline and development in Eastern Siberia is directly linked to the question of how to promote new investment projects in undeveloped regions; I would like to consider what is required in order to do this.

During the 1990s, Russia's oil sector played the most important part in state revenue. This was a period when privatization, structural reforms and the development of a new investment environment took place, making the construction of a new mechanism necessary. However, at that time, efforts to build a regulatory mechanism were lagging behind, so investment in Russia's oil industry and motivation to invest were not always treated as important and it was not a priority field of activity for companies. As a result, the volume of oil production diminished drastically during the 1990s. Improvements in the situation began to be seen at last from 2000. As Mr. Saenko has already pointed out, this was a time when the amount of money ploughed into the industry increased to $6-8 billion. However, facilities had become quite decrepit and replacement efforts were inadequate. With regard to the investment environment in the oil sector at present, the focus is only on restoring production capacity to the level that existed from the 1990s until 2000. In other words, all the money invested in the oil sector (i.e. in oil production) is being used to maintain existing production facilities.

Breaking down the financial resources in Russia's oil industry, 70% is sourced from depreciation funds, 15% from profits and the remaining 15% from loans and share issues. Since 2003, an interesting trend has been observed. Although there have been large inflows of money to the oil sector as a result of the strong sales performance of oil in foreign markets, the amount invested is declining. Why are the commercial profits and profitability of Russian companies more than double those of leading Western companies? The reason for this is that the development of production areas and introduction of equipment was all carried out during the Soviet era. Moreover, the valuation of the resource development, utilization rights, fixed assets and reserves acquired by companies in the privatization process was excessively low, on top of which, drilling is being carried out by a cheap workforce. The failure to put in place the conditions and systems that would promote investment is the background to this kind of environment.

One reason why an investment environment has emerged in which companies do not

have the motivation to invest in new projects or the development of production areas is the fact that the government has aimed to secure budget funds from tax revenue by setting a high tax rate, but has neglected to build an operation system appropriate to the times and has put in place lax regulatory standards. Currently, a high tax rate has been set for the oil sector and stimulant measures, such as corporation tax credits and preferential tax measures when conducting investment, have been suspended. PSAs emerged at the beginning of the 1990s, as a stimulant measure that would attract investment, but the initial PSAs contained many issues that were unclear. The Federal Government is currently amending the defects in the PSA system.

With regard to pipeline construction and use, the government takes the line that the state owns the pipeline. This is because there are so many issues that are unclear, such as the question of who will be given priority in trunk line access, tax revenue arising from the construction of a new oil pipeline, and the profitability risks of delivery by oil companies to remote areas via a new pipeline.

With regard to reforms of the Law on the Use of Subsoil Resources, it is really a question of whether they will be progressive or regressive. There is also the question of the transfer of authority between the federal and regional government. Whatever the case, in order to make the development of Eastern Siberia attractive to investors, the correct circumstances, mechanisms and atmosphere must be put in place. It is necessary for those involved to put an end to all romantic hopes and consideration of special schemes, instead joining forces in promoting new projects with a single objective and building a stable, functional system. For example, we must face up to the question of whether or not the money that Russia has is sufficient, but given that it does not seem that it will be able to provide the financial resources that the oil and gas sectors require with an investment of a few billion dollars, it is likely that it will be necessary for Russia to cooperate with the business community in Japan and other countries in order to implement promising projects.

Boris G. Saneev

Deputy Director, Energy Systems Institute
Siberian Branch of the Russian Academy of Sciences, Irkutsk

Fields in which bilateral cooperation between Russia and Japan could take place via the Kyoto Mechanisms include the construction of new power generation facilities, the modernization of existing power generation facilities, the conversion of electrical power stations and boiler facilities in Eastern Siberia and Far Eastern Russia to run on natural gas, and the use of renewable energy as an alternative energy source.

Currently, there are more than 700 power stations in Russia, with a total output of 215 million kW; thermal power stations account for 70% of Russia's rated output, and for more than 30% of total heat supply. Moreover, as can be seen from Figure 1, 48% of total emissions of atmospheric pollutants are generated by the electricity sector.

Of the fuel used in power stations and boiler facilities in Eastern Siberia and the Far

Eastern region, the share accounted for by coal is 75-80%. This has an immensely deleterious impact on atmospheric pollution. In the continuing development of most industrial hubs in Siberia and the Far Eastern region, it will be necessary to make real improvements with regard to the problem of atmospheric pollution. In order to do this, the introduction of clean facilities to existing and new electricity-related companies will be required.

Let us consider the market for power generation facilities. Figure 2 shows the situation with regard to the introduction of new power generation facilities and the structure of output by the year in which they began operating. The tendency for major facilities to become decrepit is becoming an increasingly serious problem in Russia's electricity industry. Of the country's power generation facilities, 20% have exceeded their design life. Moreover, it is estimated that 50% of Russia's power generation facilities will exceed their design life by 2010, with this share rising to more than 90% by 2020. In order to replace these facilities, it will be necessary to establish generation facilities with a total output of 5-6 million kW each year. The necessity of introducing new power generation facilities as soon as possible is listed as a basic policy in Russia's strategy for its energy industry.

Currently, there are plans to introduce new electricity generation facilities with a total output of 177 million kW between 2003 and 2020. As a result, rated output will be increased from the current level of 215 million kW to 285 million kW by 2020.

Figure 1

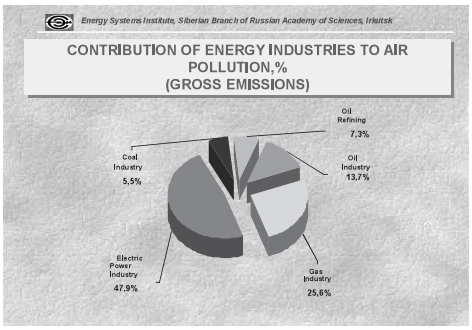
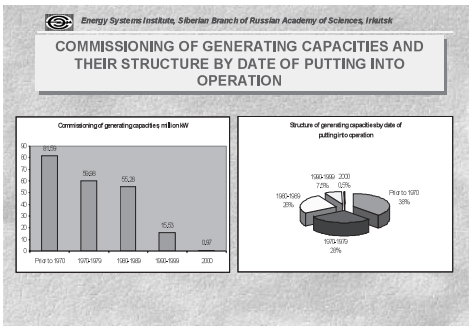


Figure 2



With regard to the situation concerning the development of the gas supply system in Eastern Siberia and the Far Eastern region, although these areas are blessed with abundant resources, the extraction of large quantities of gas is not taking place at present. The quantity extracted annually is just 7-8 BCM. On the other hand, primary demand is estimated at 2-3 BCM in these regions. Of this, 60-75% is used at power stations and boiler facilities.

As can be seen from Figure 3, converting boiler facilities and power stations from coal to gas would enable CO_2 emissions to be reduced by 30-40%.

According to official data, there are 67,000 boiler facilities operating around the country, providing homes with heat. The majority of these, particularly boiler facilities in Eastern Siberia and the Far Eastern region, run on coal, diesel or heavy oil, but converting these to run on natural gas would be beneficial, both economically and from the perspective of

cutting CO_2 emissions. Figure 4 shows the economic effects of converting boiler facilities to run on natural gas.

Figure 3

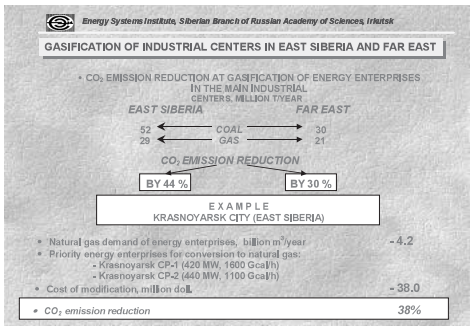
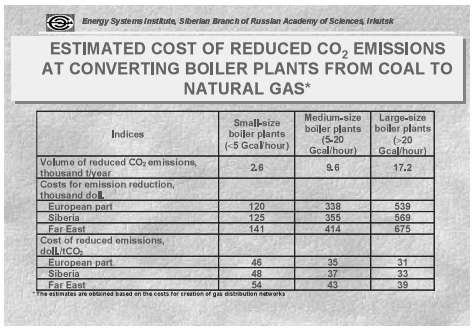


Figure 4



Many small-scale diesel power generation and boiler facilities are used in Eastern Siberia, the Far Eastern region and Northern Russia as a whole. These facilities burn a total of 2 MT of expensive diesel fuel. However, the problem is not merely that diesel fuel itself is expensive, but also that the cost of transporting it is also quite high.

As can be seen from Figure 5, the cost of transporting fuel to the residents of Northern Russia is 20 billion rubles; although this is a ballpark figure, it means that an amount equivalent to 10-20% of that region's budget is being used for this purpose. Naturally, one begins to wonder whether these small-scale power generation facilities could not be converted to using natural gas.

Figure 6 shows tentative calculations of the potential for the use of alternative energy sources (geothermal heat, wind power, solar cells, etc.)

Figure 5

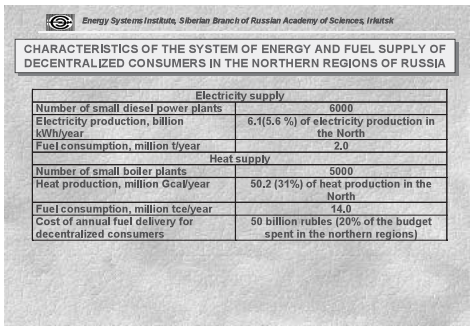


Figure 6

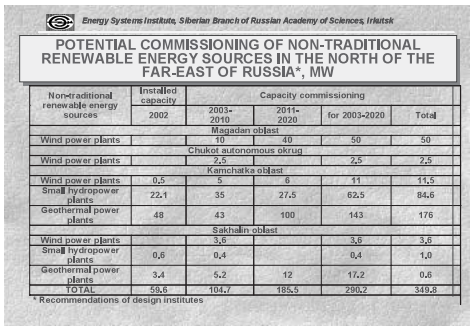
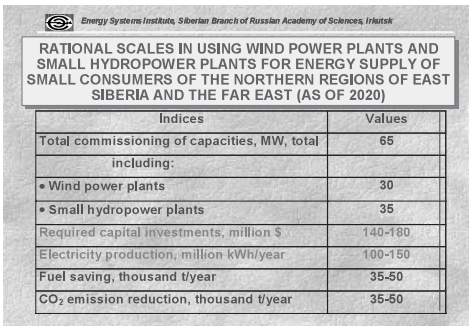


Figure 7 shows the results of a study of small-scale power generation facilities that was carried out at my institute. For example, a study was carried out concerning the issue of whether switching to wind power plants or power stations that used solar heat would be effective. As a result, we discovered that it would be possible to achieve a substantial reduction in the cost of the fuel currently consumed, while also significantly cutting the volume of CO_2 emissions.

Figure 7



Energy Systems Institute, Siberian Branch of Russian Academy of Sciences, Irkutsk

RATIONAL SCALES IN USING WIND POWER PLANTS AND SMALL HYDROPOWER PLANTS FOR ENERGY SUPPLY OF SMALL CONSUMERS OF THE NORTHERN REGIONS OF EAST SIBERIA AND THE FAR EAST (AS OF 2020)

Indices	Values
Total commissioning of capacities, MW, total	65
including:	
• Wind power plants	30
• Small hydropower plants	35
Required capital investments, million $	140-180
Electricity production, million kWh/year	100-150
Fuel saving, thousand t/year	35-50
CO_2 emission reduction, thousand t/year	35-50

Russia wishes to meet all its international commitments relating to environmental protection. Moreover, it wishes steadfastly to implement mechanisms such as the Kyoto Protocol in the future; nevertheless, the costs arising from these mechanisms are high, so Russia is keen to implement these plans in collaboration with other countries.

Evgeniy A. Vasilchikov

Trade Representation Office of the Russian Federation

Japan is undeniably one of the world's top fuel- and energy-consuming nations. At the same time, Russia boasts vast reserves of oil and gas and has export potential. However, I am pessimistic about the prospects for cooperation in the energy sector.

Russia's potential could not be said to be being utilized adequately at present. Previously, projects taken up by Japanese companies, such as a project aimed at constructing a chemical plant, have unfortunately been shifted to companies from the ROK. The LNG shipped within the framework of the Sakhalin II project is being dispatched to companies that are not participating in the project, such as the ROK and the US. Those on the Japanese side have adopted a passive stance with regard to future contracts. Why has this situation come about?

A number of issues have been pointed out as the reasons why cooperation is not progressing, but I do not find any of these very persuasive. For example, there is the attitude that business with Russia in the fuel and energy sector is particularly high-risk. However, are there any areas in which the risk is low? The risks relating to such countries as Iran, Iraq, Saudi Arabia, Libya or Nigeria certainly could not be described as low. The oil and gas business has developed in politically unstable regions over the last century, so we have become accustomed to this.

It is recognized in Japan that doing business in Russia entails risks. If this were not the case, Japan's ratings and investment information center would not rate Russia as a high risk. In a June 2004 announcement, Russia was evaluated as being a higher risk than Kuwait, Saudi Arabia, Brazil, Kazakhstan, Vietnam, Algeria, Indonesia, Libya, Iran, Nigeria and Venezuela, most of which supply Japan with oil. It is interesting that the timing of this

announcement coincided with the Yukos incident.

The territorial issue might also be an obstacle to promoting cooperation. Russia is not the only country with which Japan has territorial issues. Why is Japan unable to cooperate with Russia, when its cooperative relationships with these other countries are progressing? Although very few people believe that Russia and Japan will resolve the territorial issue in the near future, there are also people who paint a fanciful, rose-tinted picture with regard to the resolution of this issue.

Some people point out that another reason why the cooperative relationship between the two countries has stalled is that the degree by which Japanese energy consumption will grow in the future is uncertain. I would like to quote a number of Japan's official statistics. Over the five years from 1999 to 2003, the use of natural gas by Japanese companies in the electricity, gas and chemical engineering fields grew from 226 BCM to 281 BCM. The annual average increase during this five-year period was 5%. The total amount of gas shipments and consumption by Japanese companies during this period rose from 276 BCM to 350 BCM. If we convert this to LNG equivalent, annual consumption was 6 MT.

As a result of the entry into force of the Kyoto Protocol, Japanese consumption of natural gas is likely to increase further in future. For instance, as the costs of constructing a pipeline between Sakhalin and Japan are extremely high, there are people who fear that the price of Sakhalin gas will be set slightly higher than it might otherwise be. However, the Sakhalin Pipeline Feasibility Study Company, Mitsubishi Research Institute and the Japan Pipeline Development Organization have carried out trial calculations and concluded that it is both technically and economically viable. The price that Russia has agreed with China for LNG is extremely attractive, but this dream probably will not last for more than two or three years. The price of LNG will probably increase thereafter. The day when the price of oil reaches $80 per barrel and the price of fuel coal reaches $100 per ton is probably not very far away.

Moreover, there are those who fear that Japan's fishermen will suffer significant losses as a result of the laying of a gas pipeline between Sakhalin and Japan, and that compensating them for this will cost a lot of money. However, building a pipeline is not the same as constructing a power station and it is not the case that there will be a continuing need to pay them compensation throughout its 20- to 30-year operating period. Admittedly, there would be a degree of danger while the gas pipeline was being built, but any environmental problems would most likely rectify themselves after its completion.

So what are the obstacles to cooperation between the two countries? What is lacking? The reason is probably that clear support on the part of the Japanese government is lacking. For example, there are people who believe that the signing of contracts relating to oil and gas is an issue about which the private sector should think. However, is it not a fact that, without the support of JBIC and the Japan Trade and Investment Insurance Organization, or without support or guarantees from METI, private sector companies will not embark upon such projects?

It is necessary to acknowledge that Russia is now undergoing rapid changes. In the Russia of today, both oil and gas companies and the state have an abundance of the funds required in order to implement projects themselves. The tax levied on Yukos alone is $25 billion. Money is also accumulating in the country's stabilization fund. Russia has

the money to implement on its own all the projects due to be conducted in collaboration with Japan (the Sakhalin projects, the construction of a pipeline from Sakhalin and the construction of a pipeline from Taishet to Perevoznaya). There are companies in Russia with a high ability to pay. What is required for the two countries is to find a large-scale energy project that is profitable for both Japan and Russia. The Pacific pipeline could become one such project.

The pipeline is likely to be constructed in any case. Furthermore, it is necessary to develop oil and gas production, as well as new projects involving the production of such high value-added products as DME, as highlighted by Mr. Metelkin.

Currently, all the negotiations are being conducted with Japan's Agency for Natural Resources and Energy. We must ensure that this thin line linking the two countries in the energy sector is not severed. For example, regular talks on energy issues take place during intergovernmental committee meetings, but in 2004 there was no dialogue at all. An organization for the promotion of trade and investment between Japan and Russia has also been established and interaction is taking place between the business communities of the two countries. In Russia, organizations such as the Ministry of Industry and Energy, the Ministry of Economic Development and Trade, the Board of Audit and the Russian Federation of Producers and Entrepreneurs are prepared to consider this issue in a constructive manner. Is not the time approaching for Japan to take a step forward?

Takehiro Togo

We have heard some very pessimistic comments from Mr. Vasilchikov. He asked whether the biggest problem might not be that Japan is suppressing various cooperative activities in its economic relationship with Russia because of the territorial issue, and I would like to respond to this. Of course, there is a territorial issue and this has constantly been a key problem in Russo-Japanese relations over the last 150 years. For example, when the exchange of Sakhalin and the Kuril Islands took place, there was massive criticism in Japan, as well as in Russia. On 2nd September 1945, Stalin said, "For 40 years there was a black spot in our hearts. At last we have been able to erase it." However, unfortunately, a black spot then remained in the hearts of the Japanese people. What the Japanese government insists is that we should resolve this territorial issue that has continually tormented the people of both countries for the last 150 years and engage in fully-fledged confidence-building activities. I would like to tell Russia that it is important to pay attention to cases such as that of France and Germany, which sorted out the problems that had caused three wars between them; they then went on to build up relationships of trust and have now become the hub of the expanded EU, which is home to 480 million people.

The Japanese government certainly is not suppressing exchange between the two countries because of the territorial issue. We can see that this is not the case from the fact that the Japanese government has recently joined with Russia in enthusiastically discussing issues relating to the Pacific pipeline.

With regard to Sakhalin II, 60-70% of the LNG contracts have already been concluded; the main demand for this is coming from major Japanese consumers. It is clear from these figures that the Japanese government does not have any power to suppress them. With regard to the Sakhalin I issue, Japanese users are hesitant to participate from an economic standpoint; the Japanese government is definitely not trying to suppress or hinder the establishment of the pipeline. On the contrary, the Japanese government continues to support it.

The Japanese position is that the energy cooperation that has now begun is the issue that will primarily set the tone for the relationship between Japan and Russia in the 21st century, and that it would be best for us to position this issue within this process. I would like Mr. Vasilchikov to understand this point, as a member of the Russian Trade Representation working in Japan. I would like to add that considering things from a pessimistic viewpoint could have an adverse effect on Russo-Japanese relations, which currently enjoy an extremely positive atmosphere.

Sergei Goncharov

I would like to add to Mr. Vasilchikov's remarks. It is true that there are political problems between the two countries. In this sense, as Mr. Togo pointed out, it is vital to look at things from a broader perspective, rather than being fixated on a single problem. Furthermore, we should focus more on what is happening around the world.

For example, I would like to look at relations between India and Pakistan. The two countries have an extremely complex relationship with regard to the Kashmir issue. A succession of tragic situations in which armed conflict breaks out has taken place. However, various changes are taking place in the energy field and India's politicians have

made a wise choice. Specifically, they have opted to promote energy cooperation with Pakistan and the plan to build a gas pipeline running via Pakistan to India from the South Pars gas field in Iran is moving in a very positive direction. Negotiations are progressing and it is likely to be implemented before long. This could be described as a perfect example of the solution of the same kind of problem. On the other hand, there are less positive examples, such as various political factors inhibiting gas projects involving Iran.

As Mr. Sugimoto pointed out on the first day of this Forum, we should not repeat the mistakes of the past, such as gas that Japan could have used being sneered at as "red gas" for 20 years. Of course, I am neither an expert in this field, nor in the field of finance, but I was extremely impressed by Mr. Higashi's presentation. Areas of the private sector that have an actual interest have participated in the projects that Russia has already conducted and will do so in the implementation of various other projects in the future. This in itself can be considered as a guarantee that the project will be implemented. The entry of the private sector forms a guarantee, rather than the political aspects. It is important for companies to initiate talks with regard to the pipeline and other projects. If they do so, it can be expected that a more optimistic tone will emerge between the two countries. There is also the point that Russia does not know what the attitude of the Japanese government and Japanese energy companies is with regard to the Pacific pipeline project.

Tadashi Sugimoto

I would like to comment on two points. Firstly, I would like to talk about the role of the government and that of the private sector. Superficially, it seems that the comments of Mr. Higashi and Mr. Vasilchikov are in direct opposition, but ultimately, are they not perhaps in agreement with regard to the point that the government and the private sector must unite in their efforts to implement such projects? While the project will not be implemented if the private sector does not follow where the government is doing its utmost to lead, it will also be difficult for the private sector to achieve anything, whatever it does, if the government does not provide an environment conducive to this. It is going to become necessary to develop as soon as possible a framework that will bring the government and the private sector together.

Secondly, as Mr. Metelkin also pointed out, DME and GTL are also fields with excellent potential for cooperation. However, a significant rise in energy demand, focused mainly on China and India, is expected in the future, and it is obvious that DME and GTL will be unable to respond to this rise in these countries. With regard to the question of how we should handle this situation, we must not only use energy more efficiency; we must also include new energy sources in our response. From this standpoint, a mechanism that brings together relevant countries to consider the issues is required, and in this sense, this Forum could be extremely useful. It is vital that we seek out a new direction, while holding successive meetings such as this, in which we can air our true feelings to each other.

Susumu Yoshida

I would like to comment on three issues. Firstly, there was the Yukos incident in Russia; this was closely linked to domestic political issues, but it is incomprehensible

when seen from an external perspective. Various problems have occurred, including the imposition of the surcharge on the company following the incident, as well as the sale of Yuganskneft, and the pursuit of tax evasion is taking place across the board. This is having an immense impact on the Japanese business community.

Secondly, there is the problem of information disclosure. For instance, although hardly any foreign capital participation in large-scale projects was permitted in 2005, Russia is claiming that it will permit the preferential introduction of foreign capital, on condition that this is implemented via a joint venture. It is unclear from the remarks of Russia's leaders whether independent foreign capital will be able to tender a bid. Moreover, Yukos made an announcement regarding the quantity of oil reserves that exist to be developed in Eastern Siberia and this information was quite widely reported in Japan, but those with a connection to the Russian oil industry state that the figures that were announced underestimated the quantity of reserves, so that Yukos could protect its own profits by putting other companies off participating in the project. If the figure that was announced did underestimate the true scale of resources, we have no information about the quantity of resources that do actually exist. I believe that participants in this Forum in particular deserve an in-depth explanation of the situation with regard to information disclosure and consolidation.

Thirdly, there are problems relating to the investment environment. For instance, as Mr. Higashi and Mr. Galichanin mentioned in their presentations, one issue in which Japan is more interested is PSAs. Mr. Galichanin pointed out that progress seems to be being made with regard to PSAs. A solid theory must be given to back this belief up. Further Sakhalin projects, from Sakhalin III onwards, are going to be implemented in the future, but the question of authority was previously raised with regard to Sakhalin III. The question of how PSAs will operate is a major one. It will be necessary to bear in mind that there will be many difficult projects that will have to be conducted jointly with foreign capital, while protecting the profits of the Russian capital. Japan is not claiming that all projects should be undertaken on the basis of the PSA method, but it could be easier to attract investment in some of them if this method were used.

Rather than making assumptions, whether positive or negative, the most important points to think about are how we can resolve specific existing problems and how we should join forces in order to do this. I believe that we should abandon our critical stances and find solutions to practical problems.

Tsutomu Toichi

Managing Director, Institute of Energy Economics Japan

I would like to start by summarizing my three points. Firstly, the importance of Russo-Japanese energy cooperation is likely to increase in a variety of ways in the future. Secondly, when promoting energy cooperation, we should acknowledge that the energy markets in Japan and Russia differ, as do relationships between the government and private sector companies in the two countries. Thirdly, based on these facts, the question facing us is in what direction should regional cooperation in Northeast Asia, including Japan and Russia, be pursued.

With regard to the first point, cooperative energy relationships are becoming increasingly important, including cooperation in the environmental field. Recently, within Japan, interest in energy security has been increasing among both policymakers and the general public. Behind this is also the fact that, triggered to a great extent by the terrorist attacks of 11th September 2001, China and India have rapidly become resource-importing countries and are actively deploying resource diplomacy. Moreover, since 2004, the price of crude oil in international oil markets has reached a level far in excess of expectations, a rise that cannot be explained as a temporary phenomenon or a cyclical element; rather, there is growing awareness that this is a major structural change that can be called a paradigm shift.

Furthermore, the formal entry into force on 16th February this year of the Kyoto Protocol, which the Russian government ratified last autumn, has great significance. In particular, the reduction of emissions of greenhouse gases stipulated in the Protocol occupies an extremely important position in Japan's energy policies. It would be no exaggeration to say that energy policies and global warming policies are two sides of the same coin. In this sense, interest in energy and environmental policies is growing considerably in Japan as well.

With regard to this, promoting the development of the abundant oil and natural gas resources of Eastern Siberia and Sakhalin has been discussed. As our Russian counterparts have already mentioned at this Forum, the creation of oil and natural gas routes aimed at Asian markets would be beneficial for Russia in the sense that it would facilitate the diversification of supply sources, and therefore export destinations, while also contributing significantly to economic development in the Far Eastern region. At the same time, it is self-evident that oil and natural gas from the Far Eastern region, including Sakhalin, would make a major contribution to the decentralization of energy supply sources for Japan, China and the ROK, which are highly dependent on the Middle East for their energy imports.

As Mr. Saneev has pointed out, it will be possible for Japan and Russia to cooperate in the environmental field in the future. As environmental problems have an oppositional relationship with energy problems, there is considerable interest on the part of Japanese companies and the national government in the reduction of emissions of specific greenhouse gases; interest in this field is also strong in Russia. This is a field that could be exceedingly important for both Japan and Russia in building win-win relationships.

My second point is that, in promoting cooperation in the fields of energy and the

environment, it is important for both sides to have an accurate understanding of each other's situations, in order to ensure that such cooperation succeeds. The fact that the relationships between the government and companies differ significantly in Japan and Russia is particularly important. From what we can see from the recent series of events in Russia, including the Yukos issue, the state's influence on the oil and gas industry is strengthening. In one sense, there is a degree of fear that there seem to be moves towards a process that could be described as the re-nationalization of the oil and gas industry.

On the other hand, for the last ten years, the liberalization of Japan's energy market has progressed amidst the globalization of the economy. As a result of the progressive deregulation of the energy industry, including the oil, electricity and town gas sectors, energy companies have placed greater emphasis on economic efficiency and their profitability as businesses than they did previously. When the energy market was still regulated, companies participated in projects in line with the policy determined by the government, but recently, with the liberalization of and easing of restrictions on the energy market, we are less and less likely to see situations in which companies conform to decisions taken by the government. It will be very difficult to ensure the success of large-scale oil and natural gas projects in Sakhalin and Eastern Siberia if they are not made attractive to the energy companies (oil, electricity and gas companies) that are the energy-importing entities in Japan. Naturally, the government's role is vital, as such large-scale projects cannot be implemented by the private sector alone. The basic role of the government is to put in place a business environment that will alleviate the political and economic risks that private sector companies cannot fully take on. However, the actual business players are private sector companies: this is what the Japanese speakers at this Forum are saying and I agree with them.

Today we heard about specific projects, including GTL and DME, but whether such projects will be accepted by the Japanese market will depend upon whether the Russian and Japanese counterpart companies involved will be able to conduct substantial business discussions, including such aspects as the economic efficiency of the projects and their environmental impact. If they can do this, projects with potential will spread of their own accord. For example, with regard to oil, our Russian counterparts have already pointed out such issues as the difficulty they have in understanding the way in which Japan's energy companies think, and the lack of clarity with regard to the attitudes of Japanese oil refining companies and oil wholesalers. As far as I understand it, the question of whether Japanese oil refining companies and oil wholesalers will take the Russian crude oil that has been transported to the Pacific coast will depend on the price terms; currently, it is difficult for them to commit, unless it becomes somewhat clearer that the price of the Russian crude oil will compare favorably with that of crude oil from the Middle East.

A situation has arisen that pits Japan and China against each other in competition for Eastern Siberian oil, but when thinking about business, while oil demand within Japan has already passed its peak and is declining, the country's oil refining industry has advanced refining equipment. For example, China's oil refineries are facing a lack of refining capacity, so CNPC is beginning to conclude long-term contracts to use Japanese oil refineries to refine crude oil that it has bought from the Middle East, and then export the

resultant products to China. Similarly, if Eastern Siberian crude oil were refined in Japan and then exported to China, this could have advantages for China as well. Just one example of the possible benefits is that private sector oil companies might demonstrate greater interest if such a scheme were to emerge as a business project. Devising schemes in which companies would be interested could be important in ensuring the success of such projects.

Thirdly, with regard to the Russo-Japanese cooperation that is the main theme of this Forum, it has already been stated that not only bilateral, but also multilateral cooperation should be promoted, particularly cooperation within the broader framework of Northeast Asia. I am in complete agreement with this. In undertaking smooth, efficient cooperation between Japan and Russia in the fields of energy and the environment, the basic premise would be for China, the ROK (if peace were achieved on the Korean Peninsula in the future, the DPRK would probably also be included, but at this point in time it would be difficult) and Japan to share some kind of grand design for what should be done with regard to a regional energy supply system that included Russia. What is required is an approach that focuses on how to pursue individual projects within the framework of this grand design. In order to do this, it would be necessary for the countries and players involved to share accurate information about such matters as energy demand and supply, energy policy and the situation with regard to resources; based on this, they would need to pursue frank policy dialogue and deepen relationships of trust between each other. For instance, with regard to the Eastern Siberia oil pipeline, bilateral negotiations between Japan and Russia and China and Russia are taking place, but it is vital that Russia, Japan and China meet around the same table, in the presence of both government representatives and interested parties from the private sector, and conduct candid discussions about what manner of development would be best in the long term. In doing so, it would be necessary to formulate a roadmap and to take on the new challenge of gradually promoting development.

Whatever the case, we are reaching the stage at which there is an historical necessity for Japan and Russia to promote bilateral and multilateral cooperation in the fields of energy and the environment. What is surely required is to aim to build a framework or system for regional cooperation that will ensure the success of this, and to strive to resolve political and territorial issues in Northeast Asia.

Finally, with regard to the means of promoting regional cooperation, yesterday Mr. Goncharov provided an overview of Russia's attitude to regional cooperation. He noted that, at present, within the ASEAN+3 framework in East Asia, various concrete cooperation projects are making progress. However, although ASEAN+3 is a movement that aims to create a community of energy-importing and -consuming countries, Russia is not a member and little consideration is given to the interests of energy-producing countries.

Nevertheless, I believe that the most practical approach to regional cooperation is for those with common advantages and common ground to unite and promote such cooperation incrementally, starting with what they can achieve at that point in time. In this sense, ASEAN+3 is beginning to make concrete progress in the form of "cooperation as consumer countries". It seems that the foundations for creating a mechanism relating to investment and trade that will benefit both Russia as a resource supplier and Japan, the

ROK and China as consumer countries are gradually being put in place. Making skillful use of various regional cooperation frameworks (such as APEC, ASEAN+3 and the International Energy Forum), while seeking positive areas in which both sides can cooperate and ensuring that companies, that is to say business, can participate to the greatest degree possible will be vital in promoting regional cooperation in its true sense.

Igor V. Scheulov

Energy Dialogue Coordinator, Ministry of Industry and Energy

Inadequate mutual understanding is a problem that frequently arises not only within state-level relationships between Japan and Russia, but also in relationships between Russia's Federal Government and regional governments, as well as those between Japan's governmental authorities and the private sector.

With regard to the construction of the pipeline, Japan became aware of the details of the project at a relatively early stage and is in a comparatively advantageous position compared with China and the ROK. I am participating in the working group that Mr. Kayama mentioned (established in 2003). Russian access to the Japanese market began at an early stage and I believe that great progress has been made in the last two years or so since then. This Russo-Japanese research group has conducted discussions examining the potential for participation in this project and has clarified many problems. There are also subcommittees focusing on such areas as exploration, drilling, financing and construction. I cannot intervene in relationships between the government and private sector companies, but I have received enquiries from many Japanese companies, including Sumitomo Corporation, asking what they should do with regard to the Ministry of Industry and Energy and the Russian companies participating in the project, as they do not have the first clue about the situation. The Russian side was at a loss as to how to handle at the government level companies with the desire and potential to participate in the project. Is it the case that their approaches differ? In the case of Russia, the names of the companies expected to participate in the project have been published, so the Japanese side can gauge the strategy of the government and federal institutions on the basis of these companies. I hope that talks in forums such as this one will become opportunities to deepen mutual understanding, identify common policies and strengthen cooperative relationships aimed at the implementation of projects.

I would like to provide an introduction to my own experiences in interregional and bilateral cooperation with Japan, China and the ROK in the Pacific Rim region. A kind of mechanism that prioritizes energy issues is working at the governmental level. Russia has intergovernmental committees with Japan, China and the ROK at the bilateral level. Currently, the Russian representative on the Japan-Russia intergovernmental committee is Viktor Khristenko, the Minister for Industry and Energy, while the Japanese representative is Nobutaka Machimura, Minister for Foreign Affairs. However, one could not say that the Japanese side is reacting constructively to the issues raised by this committee. For example, the last meeting of the committee took place in 2002. The

Ministry of Industry and Energy submitted to its Japanese counterpart a draft program based on the action plan for formulating long-term programs concerning Russo-Japanese energy cooperation that was signed during Prime Minister Koizumi's official visit to Russia; 18 months have passed since then, but a response has yet to be received. During this time, the oil pipeline working group has continued its activities, but achieving mutual understanding is not necessarily a smooth process within this group either. This project is crucial for the region as a whole. Oil and gas are essential for long-term cooperation programs in the energy sector and Russia has a similar program with China.

All of these intergovernmental committees have an energy subcommittee that promotes energy cooperation; all, that is, apart from the Russo-Japanese intergovernmental committee. The Russian side has raised this issue numerous times and there appear to be no factors impeding the establishment of such a subcommittee. Russia is prepared to amend any inadequacies and bring the upstream and downstream sectors closer together, as well as assisting the various stakeholders to understand each other's standpoints.

Russia has placed the oil pipeline and gas program being discussed at this Forum high up its list of priorities with regard to state policy. We would like the Japanese side to understand that these are national projects for Russia. Their implementation is not aimed at ensuring Russia's economic development and energy security; rather, they will enable Russia to continue to be a stable, trustworthy partner for Europe and the countries of the Asia-Pacific region.

The Federal Government's policy is to continue to lobby the domestic subsidiaries of foreign countries with which we have business relationships. With regard to cooperation between Japan and Russia, the government will continue to support the Sakhalin II project, in which leading Japanese companies are participating. This is because this project is promoting socioeconomic development in Russia, particularly Sakhalin Oblast. By controlling the project through the local supervisory council, in which governmental representatives also participate, Russia is aiming to expand cooperative relationships with Japan and ensure that the project benefits both countries. There are not many large-scale international projects, but it could become possible to increase their number in the future.

The Kovykta gas project has been mentioned a number of times during this Forum. This is a large-scale international project involving Russia, China and the ROK. The fact that a separate domestic gasification program has been adopted is making the implementation of this project more complex, but the money invested and the initial feasibility study and other work carried out through the efforts of the three countries involved was certainly not wasted: it is stored in the metaphorical piggy bank of regional cooperation. Although it may not be being implemented on the scale that was initially planned, the project planners have an adequate understanding of the project's effectiveness and it is likely that it will eventually demonstrate its considerable importance. The potential for exports will be a key point in enabling Kovykta gas to be distributed within Eastern Siberia and to the Far Eastern region, without which it will be impossible to comment on the profitability of the project.

More than ten Japanese companies are active in many energy-related sectors in Russia. This includes the Yaroslavl oil refinery project and the Elga coalfield project. The Federal Government is prepared provide greater support in promoting mutual

understanding between companies in Russia and Japan, an issue that Mr. Toichi pointed out. The State Duma has proposed the establishment of an inter-parliamentary committee. This could assist in deepening mutual understanding and further promoting cooperation in the energy sector. Full use is not being made of the government's role with regard to joint participation in competitive resource development projects and the identification of projects with promise that could support Russia's long-term program. Russia is prepared to sit around a table with Japanese governmental representatives in order to reconsider such programs and explore specific directions for future cooperation.

Among the points with regard to which the two countries are not necessarily in accord is the issue of finance. However, as Mr. Saenko pointed out, the situation has changed completely since 1998. In 2004, the Yukos issue was being considered by a Texas court, so there was a freeze on the activities of foreign banks, while they waited to see whether they should finance Russian projects. However, now that the Yukos problem has been resolved, there are no problems whatsoever with regard to the receipt of loans from banks around the globe.

Some people have asked why Russia is seeking to obtain funds from Japan, China and the ROK, but it is not that Russia wants money. Russia could find the money itself or obtain loans from overseas financial institutions. What is important is not the debate about who is seeking what and from where; rather, the key issue is aiming to expand regional projects into projects that can play a global role and thinking about what we should try to achieve by joining forces. The time for this is approaching. This is because the aims of this project will contribute to worldwide energy security.

Keizo Takewaka

Director, Economic Security, Economic Affairs Bureau, Ministry of Foreign Affairs

I rather feel that this issue has more-or-less been talked to death, but I would like to make three points from a different perspective. I would like to state from the outset that I do not necessarily have a direct connection with Russo-Japanese relations and the pipeline issue, and will not necessarily be able to respond to discussion of matters concerning the pipeline. Moreover, I am not necessarily serving as a government mouthpiece.

First of all, if I were to say what kind of region Northeast Asia was seen to be from the perspective of the Ministry of Foreign Affairs, I would have to say that it is necessary for the region to learn from Europe's example, as Mr. Nakayama and other speakers have already pointed out. However, at the same time, there are also aspects that require us to take a good, hard look at the situation in Northeast Asia. If we bear in mind that this region is complex in many ways, differences in the implications of the word "security" emerge.

The causes of this complexity are conflict, disputes and diversity. Northeast Asia faces such disputes as the delineation of marine boundaries, relating to EEZs (exclusive economic zones) and continental shelves, as well as the Korean Peninsula situation and

problems between China and Taiwan, both of which could escalate into actual conflict. When seen from the perspective of the business community, they are risk factors. With regard to diversity, the main players in the region are Japan, Russia, China and the ROK, but they all differ in terms of economic development, the presence or absence of resources, ethnicity, population, language and military capability. Of these, there is a particular need to focus on the differences between the nature of their economic development and on the fact that their economic structures differ significantly.

Secondly, I would like briefly to touch upon Japan's point of view concerning energy security. The word "security" has implications that encompass not only such worldly matters as military capability in the hard sense of the term, but also such soft aspects as trust and peace of mind; this is why the term "economic security" has come to be used of late. In my view, economic security can be defined as being able to have anxiety-free economic and business relationships with neighboring countries. The starting point for energy security in Japan was its experience of the oil crises in the 1970s, when Japan first began to sit up and take notice. After that, specific action began to be taken, including diplomacy and independent efforts aimed at securing a stable supply of energy, efforts to develop a response in the event of an emergency, and energy conservation through improved efficiency. What was even more important was that Japan became aware that, particularly in view of its specific situation, it could not ultimately guarantee its own energy security independently. In other words, as it could not continue along its unilateral path, rather than being the only model student in the field of energy, it should create a forum for international cooperation that would help everyone to become model students. Originally conceived as a counterbalance to the power of oil-producing countries, the International Energy Agency (IEA) was established on the basis of an idea of Henry Kissinger's; now Japan does not use the IEA for its own purposes alone, but works on the basis of joint efforts with other countries. On the other hand, Japan is reliant on the Middle East for 90% of its crude oil supplies, so risk management aimed at reducing this figure is needed; accordingly, Japan is promoting the diversification of its supply sources.

Thirdly, with regard to energy cooperation in Northeast Asia, I would like to point out both the conventional and unconventional aspects. With regard to the conventional aspect, i.e. what we have done so far, what Japan can do is to make available its conceptual abilities and devise a roadmap, such as that suggested by Mr. Toichi. In other words, Japan should consolidate its perspectives by formulating a vision or philosophy for the future and develop this into actual international cooperation, such as an energy community. However, this alone is insufficient. In fact, it is proving difficult to achieve progress in energy cooperation in Northeast Asia, so it is necessary to reconsider why it is required. Japan has also found it hard to achieve a reduction in its 90% reliance on Middle Eastern crude oil.

If we look at Japan today, and what kind of country Japan is going to become in the future, energy demand has peaked, so quality is going to become more important than quantity.

The countries of the Middle East are growing significantly and have a strong ability to penetrate the Japanese market. It could be necessary for Japanese companies to see them as significant rivals. As has been reported, Saudi Aramco of Saudi Arabia currently

owns 10% of Showa Shell Sekiyu, but there is talk of increasing that share further and sending one of its directors to Showa Shell. However, the question of how it will penetrate the absorbency of the Japanese market is more difficult. Oil is now very expensive and if this were Japan in the 1970s, there would already be a considerable panic. The reason why this situation has not made such big headlines is that in numerical terms, the share for which oil accounts in the primary energy supply is declining, so Japan's dependence on the Middle East for oil is less than 50% in the primary energy supply; moreover, the value of the yen in foreign exchange markets is increasing.

I am not saying that we do not need Russia's oil, and far be it from me to denigrate the Pacific pipeline. I would just like to point out that a broader perspective is required: the Pacific pipeline project is not the be-all and end-all of Northeast Asian cooperation. There are three points concerning this. Firstly, multilateral initiatives are required. Secondly, it is necessary to conduct a thorough analysis of the economic structures and economic development of the countries of Northeast Asia, with a particular focus on Japan, China and the ROK. Thirdly, we need to make a rough sketch of the kind of market structure that will develop in Northeast Asia in the future, as well as the kind of structure that should develop.

I fully understand that the Energy Charter Treaty probably is not welcomed in Russia, but Japan struggled quite hard in order to join it. I would not go so far as to say that I would like Russia to participate in this treaty immediately, but from an administrative perspective, Japan is rather bewildered as to why Russia is not adopting a more positive tone with regard to the treaty. The treaty itself is linked to frameworks for accepting foreign investment, and could lead to a concept similar to a mini-FTA for Northeast Asian economic cooperation, which would have advantages relating not only to customs tariffs, but also to investment and services. The construction of this kind of extensive mechanism could well be required.

Igor B. Svetlov

Director, Far Eastern Center for Strategic Energy Research

The Far Eastern Center for Strategic Energy Research was established in August 2004, on the basis of a decision by the General Council of the Far Eastern Federal District, led by Konstantin Pulikovsky, Presidential Envoy to the Far Eastern Federal District. The objectives of its establishment were stipulated to be education, strategic planning, resource research, export and import, and strategic energy and fuels development in the energy sector of the Far Eastern region.

In addition to the Moscow State Institute of International Affairs, the Energy Policy Institute in Moscow, the Far Eastern Branch of the Russian Academy of Sciences, and the Far Eastern State Technical University, three electricity companies cooperate in the work of this Center: Dalenergo, Sakhalinenergo and Kamchatkaenergo.

A Supervisory Council was also established for the Center, under a decision by the General Council; the members of this Supervisory Council include the governors of the

various districts within the Far Eastern Region and Valentin Sergienko, Chairman of the Far Eastern Branch of the Russian Academy of Sciences. Vyacheslav Shtyrov, President of the Sakha Republic, was appointed Chairman of the Supervisory Council.

The Center aims to mobilize expertise in a variety of fields, in order to improve administrative efficiency in the Far Eastern region and enable the Academy of Sciences to realize its potential. Moreover, so far it has already forged cooperative links with around 40 groups.

Koichi Sakai

Director, International Affairs Division, Niigata Prefectural Government

From the perspective of a representative of a local authority, I would like to comment on three points about which I have become somewhat concerned as a result of this Forum.

Firstly, I wonder whether the Northeast Asia Economic Subregion (called the Japan Sea Rim Economic Subregion in Niigata) concept might not have started to run out of steam recently. Secondly, the importance of energy strategy has been discussed here at great length, but has this awareness actually spread to the general public or to the people of neighboring countries? Thirdly, energy development is being discussed, but is it sufficient just to strike oil and transport it? In other words, might it not be necessary to give greater consideration to how we can link this to regional development?

First of all, with regard to the formation of the Japan Sea Rim Economic Subregion and each country's initiatives, as you are doubtless aware, along with the EU and NAFTA, discussion of the East Asian Community concept is flourishing at present; mutually complementary relationships between Japan, China and the ROK are intensifying and becoming essential to all three countries. However, the central stage for this is the region around the Yellow Sea coast; unfortunately, the concept of an economic bloc focused on the Japan Sea, which has been advocated since the 1980s, is still being hampered by residual problems from the Cold War era, such as territorial disputes, kidnappings and nuclear development issues, and the concept seemed to have become rather faded. Fortunately, since the beginning of the 21st century, the possibility that the Northeast Asia Economic Subregion might see the light of day has emerged once more. For instance, there are positive signs relating to China's northeastern region development policy and Russia's energy, transport and infrastructure development projects. Alas, in general, the Japanese government has not shared a concrete policy on Northeast Asia with the populace.

Secondly, there is a problem with regard to awareness of the importance of energy resources. The Kyoto Protocol has entered into force and environmental problems are increasing in importance, and the Japanese government is making efforts to promote energy conservation and diversify energy sources. Japan's reliance on the Middle East for oil is certainly still high and securing a stable supply of energy will continue to be an issue of paramount importance for some time to come. However, unfortunately, the oil crises

have faded from the memory of the Japanese people and they seem not to have a sense of crisis about the issue. In the past, there were warnings such as those of the "limits of growth" from the Club of Rome, and it is said that we have already consumed half of the world's fossil fuels. In the future, until it becomes possible to use renewable energy in earnest, it will be necessary to avoid gobbling up the remaining energy sources that could be described as our precious lifeline. Amidst this situation, could the development of resources in Sakhalin and Eastern Siberia and the upgrading of transport routes be the light at the end of the tunnel? There should be greater awareness that securing these unique Northeast Asian energy sources gives the region a significant advantage that does not exist in any other economic bloc concept. In addition, if we were able to use these energy sources as a magnet for steadily attracting investment and labor, we could achieve mutual prosperity with related countries that does not result in a zero sum. Furthermore, if energy use and regional development could be turned into a network involving other related countries, it might help to ease tensions and become a model for conflict resolution around the world.

There have been various discussions about the direction of the development of oil and gas resources in Russia and there are many challenges, but from the perspective of regional community assets, it is necessary for the Japanese government to make a positive contribution that transcends such conventional boundaries as ODA and JBIC loans. The mobilization of a variety of funds and know-how in this project is required; in order to do so, it is necessary to demonstrate tangible benefits that go beyond mere resource development. From the regional perspective, there is a feeling among the Japanese local authorities involved that these projects will only result in temporary pipeline construction demand. They should be linked to initiatives that will continue to bear fruit; in other words, it is necessary to pursue a development chain. In order to do so, it could be worth considering a distributed oil refining process and trial environment-related projects within Russia. During its period of high growth, Japan skillfully undertook regional development under the slogan "the balanced development of the nation", and the functioning of this kind of method is required in the future as well.

Thirdly, to end on a more encouraging note, I would like to talk about hopes for the development of Russia's Far Eastern and Siberian regions. 200 years ago, California was the remotest part of the globe from the perspective of European civilization, but as a result of the Gold Rush, it became known as Eldorado (the city of gold), both in name and in reality. It is not the case that it experienced growth just because of the gold; rather, there were additional aspects that made a contribution. For instance, irrigation was achieved through the completion of the Hoover Dam, Stanford University was established and, more recently, skillful use of soft assets such as Silicon Valley and Hollywood has been made. I hope that energy development can be used as a lever in Siberia and Far Eastern Russia, to enable them to shake off the "frontier" tag and become the California of Russia.

Right now, what is needed is to transform the Japan Sea into a sea of peace and prosperity; and it is upon us that the responsibility for doing so falls.

Pavel A. Minakir
Director, Economic Research Institute
Far Eastern Branch of the Russian Academy of Sciences, Khabarovsk

It is extremely important to aim to achieve Northeast Asian energy cooperation by consolidating the linkages between various projects. In previous conferences as well, it has repeatedly been said that energy issues in Northeast Asia should form the core of economic cooperation, but there is something else that must be borne in mind at the same time: energy cooperation is just one among a number of important elements in infrastructure-related cooperation in Northeast Asia. Other vital elements include the issue of establishing transport corridors.

In his report, Mr. Beveridge mentioned the forecast that Northeast Asia will account for 15% of all energy cooperation by 2020. This suggests that even those projects that are large enough to be called mega-projects are not that large within the context of the free economy and are just one fragment of the energy market.

Accordingly, we must pursue cooperation in a deeper sense, broadening its scope beyond cooperation in the fields of energy and transport. In other words, with regard to the issue of economic cooperation, we must seek at the same time to include institutional cooperative relations in the fields of finance and technology, and pursue integration in its broader sense. In doing so, the 3 + 1 + 2 relationship (3 = Japan, China and the ROK, +1 = Russia, +2 = the DPRK and Mongolia) could become a keyword in the model for cooperation in Northeast Asia. In implementing energy projects, the focus will be on whether we can achieve a balance in events through the 3+1 configuration and develop things in a positive direction; to put it another way, we must ensure that it is 3+1, not 3 against 1. There appear to be various other possible directions and the balance of the various strengths among the four countries will influence these. What I would really like people to think about in pursuing these directions is what spatial elements must not be ignored. For Russia, the energy industry is an industrial field of national importance, but if one observes the Far Eastern, Baikal and Eastern Siberia regions, one could say that they are regions on the Northeast Asian side.

Immense changes are currently taking place in the Far Eastern region. Before our very eyes, a third global concept is arising, or a change is taking place in the development paradigm that Russia has cultivated over the last 150 years. In other words, instead of manufacturing- and trade-related schemes, schemes concerning international energy and transport corridor infrastructure that supports regional development are expanding rapidly. For instance, 70% of investment capital has recently been concentrated in the field of transport. Of course, investment relating to the Sakhalin projects is included in this figure.

As far as the question of what Far Eastern Russia must do next is concerned, the stability of development is more important than its speed. The point of paramount importance is whether the economy as a whole can be developed in a multifaceted manner, with the fields of energy and transport as the cornerstone of this development. In my view, this is possible. I would also like to say this at the philosophical level.

The Sakhalin projects are very good models. While using these projects as a form of motive force, there remain various problems that it is necessary to resolve, as Mr.

Galichanin pointed out. The Sakhalin projects occupy a crucial position with regard to energy cooperation. In other words, by developing multilateral mega-projects, it will simultaneously be possible to pursue effective development at the regional level. In this process, we could be able to pursue integration not only in the energy sector, but also with regard to the economy, trade and commerce in East Asia as a whole.

Yuji Nakamura

Group Manager, Overseas Business Division, Nippon Steel

I have never before participated in such an intense conference at which such frank opinions were expressed as at this Forum. We have heard the wise words of a multiplicity of experts over the last two days. The problem is how to build a mechanism that will link this range of knowledge to the next, concrete step. Not only have I been involved in a variety of business with Russia before now, I have also attended a number of similar forums from the perspective of a researcher, in my capacity as a visiting researcher at the research institute chaired by the former prime minister, Yasuhiro Nakasone. As both a businessman and researcher, I am constantly aware that the issue is how to implement projects after conducting a more profound, frank exchange of opinions such as this Forum.

First of all, I would like to express a concern to our Russian counterparts. Looking at dialogue relating to energy issues in particular, many among the general public in Japan have the impression that the relationship between Japan and Russia over the last six months has cooled considerably compared with the situation in January 2003, when Prime Minister Koizumi and President Putin agreed the Japan-Russia Action Plan. The reasons for this have already been cited at this Forum by various participants. Since the economic crisis in 1998, Russia has continued to experience remarkable growth following the rapid recovery of its economy and the state finances have clearly taken a turn for the better. In fact, I have heard from those members of the upper echelons of Russia's oil companies with whom I am in contact that all the oil companies have ample cash flows, and some people have expressed the opinion that foreign cash is not required for development in Sakhalin or Eastern Siberia. For example, foreign capital was invested in the Sakhalin I and II projects, but I have obtained information suggesting that development since then has been limited to Russian companies; moreover, with regard to the issue of money to finance construction of the Eastern Siberia pipeline, there are those who publicly declare that there is no particular need for money from other countries, including Japan, as a considerable sum has accumulated in Russia's stabilization fund.

On the other hand, looking at moves by Transneft, which is likely to be the main actor in the construction part of this project, the pre-feasibility study, called the JOI, was completed at the end of 2004 and the Russian government's approval has been forthcoming, so there are misgivings that the company may be about to conduct a more detailed feasibility study. Looking at this series of moves, there are some who ask what

the meaning of the Japan-Russia Action Plan signed in January 2003 was. Various proposals relating to Japan's financial know-how and technology have been made at this Forum, so in this sense, we may have been able to convince our Russian counterparts that it would be a great pity as far as Russia's national interests are concerned, if Russia were to disregard Japan's achievements.

I would like to raise one more issue on the Japanese side. Earlier, former Ambassador Togo explained the Japanese government's viewpoint with regard to the Northern Territories issue, which was a topic raised during President Putin's recent visit to Japan. Some have quite extreme views, believing that energy cooperation is impossible without a solution to this issue. The feeling of those of us who are businesspeople is that directly linking the Northern Territories issue with energy cooperation is rather extreme. At the same time, although it may be a slight exaggeration, when thinking about the Northern Territories issue, does not the fact that even the issue of the demarcation of several thousand kilometers of border between China and Russia has been more-or-less resolved suggest that it is necessary for us to take it seriously? The Cold War era has already ended; the terrorist attacks of 11th September 2001 occurred and the security strategy of the US has obviously changed. Looking at this world in which such drastic changes have occurred, might it not be preferable to develop a perspective with a sense of timing, asking ourselves what deadline for resolving this decades-old hangover from the Cold War would be advantageous for Japan's national interests?

As the various experts here today are knowledgeable from their differing standpoints, might it not be preferable for government and the private sector to join forces in conducting dialogue, when promoting energy cooperation between Japan and Russia? As has been explained by the gentleman from the Ministry of Economy, Trade and Industry, this Forum has created an arena for a meeting of experts, but representatives of the private sector have knowledge peculiar to that sector, so might it not be a good idea to include the private sector in this kind of arena? Just now, one of our Russian counterparts said that a subcommittee has been established with regard to dialogue between Russia and China. Whether or not it takes a similar form, I believe that it is important to look at how the wisdom of the private sector can be utilized.

The US-Russia Energy Summit could also be a good point of reference. The US-Russia Energy Summit brings together senior officials from both governments and top-level managers from energy companies, and the fact that it is an informal dialogue is of the utmost importance. According to a researcher from the Baker Institute in Houston, the topics submitted for discussion by the US are extremely clear and boil down to two issues to be discussed by government and private sector representatives alike: the diversification of the energy resources used by the US, and specific ways of including US companies in the scope of energy cooperation between the US and Russia.

I would like to propose that the opportunity presented by this Forum be taken in order to establish a similar Japan-Russia Energy Summit that brings together representatives of the government and the private sector for the purposes of dialogue.

Closing Summary

Vladimir Ivanov

Director, Research Division, ERINA (Chairman)

The theme that we chose for this Forum, *Cooperation Between Japan and Russia in the Energy Field*, holds great potential if we focus on multilateral cooperation. Mr. Toichi said that, "It is possible to cultivate new markets in Japan, focusing on natural gas", and cooperative relations between Japan and Russia with a view to the Chinese or global market could generate even greater results.

Susumu Abe

Acting President, Asia Pipeline Research Society of Japan (Chairman)

Firstly, with regard to the question of what the problem is, as pointed out by most of the speakers, it is not a single issue; rather, there is a correlation between multiple issues. However, is it not the case that individual problems are becoming clearer?

Secondly, with regard to the problem of "Who?", i.e. who will promote the project, it was mentioned that there are differences in the relationship between the government and the private sector in Japan and Russia. Just now, one of our Russian counterparts uttered a phrase that evoked a strong wave of nostalgia: "national projects". In Japan today, the words "national projects" are not used, but I was often involved in national projects in my younger days. Again, with regard to the "Who?" question, it was stated that cooperation that will lead to actual business is required, and I wholeheartedly second this. Furthermore, as Mr. Sakai pointed out, the support and understanding of the populace of both countries with regard to this issue is essential. What should we do about this?

Thirdly, with regard to the question of "When?", time will not wait for us: as Mr. Sugimoto stated, an opportunity for cooperation has come our way and we must not let it slip through our fingers through our tardiness in responding to it.

Finally, there is the hardest question of all: "How?" What is required is an approach such as that proposed by Mr. Nakamura, in which we start with the things that we can achieve at present, or one in which we avoid making critical statements to each other, instead adopting a long-term view from the perspective of the parties involved and taking the whole of Northeast Asia into consideration, while ensuring that we do not do anything that the next generation will regret. In doing so, rather than taking a distributive, zero-sum approach to resources, it will be necessary to create trust and understanding in order to ensure a non-zero-sum outcome that benefits everyone. The question of "How?" is the most difficult and therefore dialogue is vital. Various opinions have been expressed as to how this dialogue should proceed and it is necessary to refine these suggestions. The assigning of an order of priority with regard to topics for dialogue could also be important.

Susumu Yoshida

Chairman of the Board of Trustees and Director-General, ERINA

This Forum has been held on the eve of the visit to Japan of Viktor Khristenko, Minister for Industry and Energy, at a time when negotiations are taking place between Japan and Russia concerning the Pacific pipeline. 21 Russian organizations and 61 Japanese organizations have participated in this Forum. We have been able to hold an exchange of opinions between participants at a variety of levels and from such a broad range of fields of activity because there is great interest in this issue in both countries and also because there is a need for both sides to engage in an adequate exchange of opinions concerning this issue.

Through this Forum, representatives of both countries have defined a variety of problems and I believe that one of the biggest achievements of this event has been a considerable deepening of mutual understanding. One of the Forum's characteristics has been the presence of many participants from Sakhalin, including the Deputy Governor, Mr. Karlov. I am delighted that we have touched upon the current status of Sakhalin and various related problems, particularly the overview of problems concerning the Sakhalin I and II projects, with which Japan has a close connection, and the issue of what will become of production sharing agreements in the future.

The reports from Mr. Saenko from Russia's Ministry of Industry and Energy and Mr. Kayama from Japan's Agency for Natural Resources and Energy concerning the Pacific pipeline were of immense significance. At the same time, the report by Mr. Mastepanov about Russia's energy strategy to 2020 was extremely interesting, as was the report given by Mr. Beveridge of TNK-BP.

Problems relating to the investment environment were a major theme at this Forum. From the Russian side, Mr. Galichanin and Mr. Kryukov provided an overview of the status of improvements to the investment environment, while Mr. Vasilchikov also defined a number of problems. Mr. Kumabe, Mr. Higashi and Mr. Sugimoto spoke about issues from the Japanese perspective. Of these, it seems that there is a slight discrepancy between the two sides' views concerning which aspects of the investment environment are causing the main problems, but I am sure that both sides have been able to achieve a more profound understanding of each other's views as a result of this Forum.

We were also given an introduction to the various problems relating to new technology. What was particularly notable was that we were not merely given an overview of energy conservation issues at the level of each country and reports of new technology being developed, but we also took a step forward in recognizing that Russo-Japanese cooperation with regard to these issues might be possible. One of the most important points with regard to this is the question of how to resolve energy and environmental problems, with Mr. Saneev and Mr. Toichi giving detailed explanations of this issue. Moreover, Mr. Abe and Mr. Endo provided an overview of specific projects in this area, adding the perspective of Niigata's citizens to the discussion. Furthermore, I would also like to express my heartfelt gratitude for the direct participation in this Forum of members of the Prefectural Assembly; to Mr. Hirayama, formerly the Governor of Niigata, for his

remarks; and to Mr. Togashi from Hokkaido, for his words of encouragement, backed up by specific examples.

I would just like to mention one thing. Mr. Svetlov and Mr. Sergienko have proposed that the Far Eastern Center for Strategic Energy Research, which Mr. Svetlov represents, maintain constant contact with various organizations within Japan and have expressed a wish to increase mutually cooperative relations. The Center provides back-up for Transneft's pipeline construction activities in the Far Eastern region. I have proposed that we build a system for maintaining contact with the major research institutes and institutions that have participated in this Forum, and have consulted with many of the people here today, as a result of which I have obtained their agreement to establish a network within Japan in order to disseminate the various information that we receive from the Center. I would like to translate this into reality in the future.

Finally, with regard to the future direction, what is important among the various issues raised is that, as Mr. Goncharov and Mr. Takewaka both pointed out, we should think about these issues from the perspective of achieving economic security in Northeast Asia. It will also be crucial to share information, in order to resolve the energy and environmental issues already mentioned, and to formulate a grand design. Furthermore, with regard to the expansion of the focus from bilateral to multilateral frameworks, there is an East Asian community in the form of ASEAN+3, but it is also necessary to take up energy issues within a Northeast Asian Economic Subregion that co-exists in parallel within this framework. This may be the specific 3+1+2 framework proposed by Mr. Minakir, but Mr. Takewaka's recommendation that we think about something similar to the Energy Charter Treaty is also important, as it aims in the same kind of direction.

With regard to Mr. Nakayama's remarks on the first day of the Forum, it was pointed out that exchange between the members of parliament of the relevant countries is important, such as the form mentioned by Mr. Galichanin; I agree that this is essential. I would like both these members of their respective countries' parliaments to undertake proactive initiatives with regard to this.

With regard to specific problems, some expressed concerns about what would happen if negotiations between Japan and Russia were cut off, including the negotiations that have taken place so far with the Agency for Natural Resources and Energy. At the same time, both Mr. Scheulov and Mr. Sugimoto pointed out that relations between the governments and their respective private sectors are crucial and that skillful use should be made of the private sector. In relation to this, Mr. Nakamura made the specific proposal that a subcommittee be established as part of the intergovernmental negotiation process, with certain issues being left to the judgment of the private sector. What everyone was unanimous in saying was that the time has come for private sector participation, running in parallel with intergovernmental negotiations. On the other hand, Mr. Togo, formerly Japanese Ambassador to Russia, pointed out the necessity of a top-down approach, with regard not only to oil, but also natural gas.

If there is one thing that is regrettable about this conference, it is that there was no participation by Japanese or Russian oil companies. If a private sector subcommittee is to be established, oil companies will definitely have to be included in this. If it is still premature for this, then I would like to propose to the governments of both sides that forums such as this one continue to be held in parallel with the intergovernmental

negotiation process.

Finally, many speakers pointed out that bilateral talks in Northeast Asia must begin to be conducted on a multilateral basis. In fact, we have established an Energy Subcommittee as part of the Northeast Asia Economic Conference that ERINA holds each year, and in the future, we also hope to secure the participation of one or two members who are truly representative of China.

In this booklet, the People's Republic of China is referred to as China, the Democratic People's Republic of Korea as the DPRK, the Republic of Korea as the ROK, and the Russian Federation as Russia. In the DPRK and the ROK, the Japan Sea is known as the East Sea.

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