

Sakhalin Offshore Oil and Gas Development: Prospects and Problems in Multilateral Cooperation

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Challenges to Redefine Energy Security in Asia

Over the past 30 years, Japan and other nations have pursued “energy security” with the objective of reducing national dependence on foreign oil imports. Today, Asian nations need to think in new ways about “energy security.” There are a number of reasons for this. Firstly, in the next 20 years, Asia will need much more energy as economic growth resumes at a high rate. The US Department of Energy predicts that by 2010 Asian developing countries will consume 24.3 million barrels of oil a day, about the same amount as the United States at that time. How will Asia meet those needs? Given the growing importance of China and India as energy importers, countries in Asia will need to work together to ensure that region wide energy requirements are met in order for any country to enjoy energy “security” in the future.

Secondly, the global energy marketplace is becoming more integrated. In the past, buyers were at the mercy of suppliers. Traditional thinking about energy security led to a focus on building “special relationships” between buyers and sellers, solidified through long-term contracts. Today, buyers and investors have choices and new players are competing to supply energy as efficiently as possible. In order to take advantage of the potential gains of an integrated global energy marketplace, Asian countries will need to adjust national policies and build new foundations for deeper economic cooperation that also takes account of energy security concerns.

Thirdly, energy development and use involves environmental impacts that extend beyond national borders. How can Asian countries meet energy needs while protecting the environment at the same time? In the absence of common regulatory frameworks and, in some cases, limited scientific data and engineering experience, it is not surprising that disputes over environmental effects have emerged as critical variables in large-scale energy project development. Finding consensus among environmental groups, economic and political experts, as well as companies from countries like Japan and Russia that have yet to sign a formal peace treaty is, in these circumstances, very challenging but also necessary.

Finally, the roles of government and industry are changing dramatically. The private sector is taking a stronger lead role, while governments find their capabilities to direct investments and set priorities for energy policy more limited today than even a decade ago.

But government policies and regulations can still make a big difference in determining whether an energy project will materialize. Private sector initiative is more important than ever, so governments must find new ways of working with rather than against the market, while at the same time working to enhance national interests and regional security.

Offshore oil and gas development projects near Sakhalin illustrate why we need to think in new ways about energy security in Asia, where regional cooperation is increasingly a prerequisite for energy security. Although it appears inevitable that Asia will import more oil from the Middle East in the future, Asia also has resources that have not been developed. Oil and gas deposits in the Russian Far East and offshore Sakhalin could significantly contribute to meeting Asia’s energy needs and enhance energy security by supplementing imports from outside the region with supplies from nearby fields. In addition, by using more gas and environmentally friendly energy technologies, countries in the region could address the growing problems of pollution and global warming. Today, Asia’s use of gas is low (5%) compared to the global average of 23% of total primary energy supply. Experts expect Asia’s gas demand to grow rapidly, more than doubling by 2010. Cooperation in energy development could help to meet energy requirements and provide a foundation for cooperation in other areas among Russia, Japan, South Korea, China and the United States. Looking ahead 20 years, such cooperation could lead to more extensive trade, technological cooperation, sustainable development and enhanced security in Northeast Asia.

I visited Sakhalin in late May of 2000 in order to learn more about the progress on the offshore oil and gas projects, as well as the obstacles. Although I had talked to experts in the United States and Japan, I felt it would be useful to meet people directly involved in the projects and to hear the perspectives of the regional administration and local Russian experts.² This research is part of a larger project on the subject of “redefining energy security” supported by an Abe Fellowship. I also visited Seoul, seeking to learn more about Korean perspectives because Korea will play a key role in Northeast Asian gas as a growing consumer in the next two decades.

Promise and Problems of Sakhalin’s Offshore Oil and Gas

Ever since the first oil was produced onshore in

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² The American Business Center on Sakhalin arranged meetings and provided assistance in preparation and in interpretation. Numerous Russian, Japanese and US Government officials, industry officials, and experts on environmental and energy issues provided input and assistance.

Sakhalin in 1928, oil and gas development has included a history of extraordinary efforts (such as production in adverse circumstances during World War II) and tragic lows (such as the 1995 earthquake that killed two thirds of the population of an oil base at the northern end of the island). When offshore drilling began in 1968, engineers set records in drilling wells under severe conditions in the Sea of Okhotsk, where waves reach 7-8 meters, fogs are dense, storms frequent and ice conditions extremely difficult. Prospects of developing an estimated billion tons of crude oil and 3.6 trillion cubic meters of gas significantly greater than the onshore resources that have been depleted have inspired heroic efforts to gain the "treasure of Okhotsk."

A first-time visitor to Sakhalin is impressed by the beauty of the place. Stretching more than 1200 kilometers, Sakhalin has the feel of a frontier that is fresh, open to many possibilities and demanding. My visit came at an interesting moment. Russian President Vladimir Putin had just announced a reorganization of federal administration designed to eliminate contradictions between federal and regional laws and regulations and increase central control. His representative in the region, a former military general, will reside in Khabarovsk many hundreds of miles from Yuzhno-Sakhalinsk, the capital of Sakhalin. As I arrived, summer drilling was about to resume, and the Sakhalin II consortium team targeted a substantial increase in oil production for the 2000 season (from one million barrels to 13 million barrels). In addition, a historic North-South Korean summit was scheduled for June and a Japanese-Russian summit for late summer. All of these developments suggested at least the potential for significant change in Northeast Asia with important effects on energy and security.

In order to promote energy cooperation in Northeast Asia, it is important to understand and realistically analyze the obstacles if they are to be surmounted. One of the primary obstacles is political tension that makes potential partners (both government and industry) wary of cooperating. In this context, the commitment of Japan and Russia to concluding a peace treaty by the end of this year is important, but the task is proving to be very difficult. Similarly, recent efforts toward peaceful cooperation on the Korean peninsula suggest that this part of the world could look much different in a decade than it has for the past 50 years. Lack of normal relations among nations makes it difficult to build the trust and confidence that is needed to sustain costly projects that require long timeframes for completion.

Some of the biggest obstacles to oil and gas development offshore Sakhalin relate to short-term economic signals that discourage investment in infrastructure needed to expand production and to move the product to consumers. Some say that Sakhalin's offshore deposits could produce as much as 2.5 trillion cubic meters of natural gas, while more conservative estimates are in the range of 1 trillion cubic

meters.³ The Sakhalin I project alone could produce 2.5 million barrels of oil and 15 trillion cubic feet (421 billion cubic meters) of gas, but realistic projections are difficult because of mixed results from drilling in recent years. Although these are well below estimates for potential total gas production for East Siberia and the Sakha Republic (Yakutia), these figures do not include the potential for fields farther out in the Sea of Okhotsk. Production of as much as 54 billion cubic feet of offshore gas by 2020 could certainly help to address Northeast Asia's needs. In light of its proximity to Japan, the largest market in Northeast Asia today, the development of Sakhalin gas in the next decade is particularly attractive.

Asia's demand for gas is projected to grow sharply in the next two decades. Japan, Korea and Taiwan are today the world's largest importers of LNG. South Korean demand for natural gas is projected to grow from 12.6 million tons (17.6 billion cubic meters) in 1999 to almost 21 million tons (29.4 billion cubic meters) in 2010. If Japan implements structural reforms that promote distributed energy generation and fuel cell-powered vehicles, the Mitsubishi Research Institute projects that Japan's demand for natural gas could rise to 86.5 billion cubic meters annually by 2010 and more than 100 billion cubic meters a year by 2020. China's demand may be as high as 96 billion cubic meters by 2010 and more than 200 by 2020, according to the China Energy Institute. There is no question that Northeast Asia will need more gas. What role Sakhalin's offshore fields will play remains an open question, but the potential is great due to the considerable resources located there and the commitment of major international consortia to development.

But difficult drilling conditions and other factors combined make offshore Sakhalin projects a costly investment. Investors in Sakhalin II, the project that has progressed furthest, have already provided \$1.3 billion. Investments include shareholder capital as well as project financing from international financial organizations. Ultimately, this project alone will reportedly require \$10 billion in investment. This means that when Sakhalin II comes to fruition it will be one of the largest private investments in Russia. Another \$20 billion in investment will be required, primarily for Sakhalin I, although it is difficult to predict the costs in advance of exploration.

At present, prospects for financing are colored by a surplus of LNG in Asia, due to long-term contracts signed and facilities built or started before the Asian economic downturn. Officials responsible for regulation of the offshore shelf stress the need for construction of an LNG facility within the next few years, with 2006 as a target date. Regional administration officials are working actively with the marketing department of the Sakhalin II project to secure new Asian customers for LNG from Sakhalin. They acknowledge that the need to formulate a legal framework for the projects resulted in some delays, but anticipate that a production sharing agreement for

³ See *Oil and Gas of Sakhalin*, pp. 124-5 for an estimate of 2.5 trillion cubic meters, Al Troner, "Japan and the Russian Far East," for Baker Institute Study, May 2000 for an estimate of 1.82 trillion cubic meters (50-65 trillion cubic feet), and Michael J. Bradshaw, "Going Global: The Political Economy of Oil and Gas Development Offshore Sakhalin," in *Cambridge Review of International Affairs*, Summer/Fall, 1998.

Sakhalin III will be approved this year or early next year by the Russian Duma. President Putin visited Sakhalin and Stressed the importance of PSA and foreign investment in September 2000. This will be an important positive signal likely to increase confidence among foreign investors.

Another major factor affecting the economics of the projects is the absence of a pipeline network in the region, in particular in Japan. Although a number of companies, politicians and academic experts in Japan are actively promoting pipeline construction projects and feasibility studies, there is no general agreement yet on how to proceed. While some say that pipelines should only be built when demand has grown, others argue for building a pipeline infrastructure that permits open access as a stimulus for fostering energy market competition in Japan and other Northeast Asian countries.⁴ Pipeline project promoters on Hokkaido, the northernmost island of Japan and only 40 km from the southern tip of Sakhalin, believe that a pipeline to Hokkaido alone could make economic sense. Most informed observers, however, say that construction of a Japanese national trunk pipeline infrastructure is necessary. Moving Sakhalin gas to the industrial center of Japan and beyond would require an investment of as much as \$38 billion, according to the Mitsubishi Research Institute. However, a number of options are under consideration, including a less costly pipeline to Niigata on the west coast of Japan (1,300 km from Sakhalin), from which gas could be piped through existing lines to Tokyo. The relative advantages of pipelines built onshore or offshore and how piped gas competes with LNG are major issues of discussion and debate today as feasibility studies progress.⁵

The Sakhalin II project members, including Shell, Mitsui and Mitsubishi, are focusing on LNG production, in light of the difficulties associated with pipeline construction in the near-term. Russian regulators of the projects say that the issue of how much and what type of infrastructure development is needed must be decided on the basis of market signals, but that companies must fulfill their commitments to build infrastructure such as LNG facilities. The dilemma is that unless major investments are made in the near-term, there will be no supporting infrastructure to bring Sakhalin gas to the market when it is needed in the later part of the this decade and beyond.

A more competitive marketplace allows for more consumer choice and flexibility in fuel switching, as well as more economic efficiency. Oil and gas development also means trade for Sakhalin. In 1998, 46.8% of Sakhalin's trade was related to oil and gas. Energy development has made the major contribution to Sakhalin's trade.⁶ Sakhalin, which experiences power shortages and relies for a good share of its electricity production on inefficient coal-fired

plants, has local energy-related requirements. Sakhalin officials, with assistance from Japan, are planning to move to 100% gas-fired power generation within the next decade. Upgrading of existing gas-fired plants and the building of new ones will provide benefits in terms of reliability and reduced pollution and CO₂ emissions. On the Kuril Islands nearby, plans are under way to use thermal and wind power appropriate energy choices to take advantage of local conditions and to preserve the natural beauty of the islands.

For Japanese and US investors, as well as Sakhalin, the Russian Far East and countries in the region, environmental issues have moved to the center of attention. The United States and Russia have highlighted Sakhalin oil and gas development as a promising area for cooperation. High-level policy statements issued in the late 1990s have referenced the importance of environmentally responsible development, but a systematic joint effort has not been initiated. In the past year concerns about environmental effects were raised in some high profile debates over plans for discharge of waste by-products (drilling muds and cuttings) from the Sakhalin I project and in charges that Sakhalin II caused fish to die in a bay on the eastern side of Sakhalin. The companies have attempted to address these concerns by adjusting plans for drilling and undertaking studies and environmental monitoring, all of which add substantially to the costs of the projects. Nevertheless, risks of oil spills and potential negative effects on fisheries and endangered species are issues that require further study and coordination.

The absence of common "rules of the road" (legal and regulatory frameworks) also make energy development in Asia difficult. European nations and Japan have signed the energy charter and are working to implement common approaches to ensure rights of transit. In Asia, however, each country has different approaches to regulation of energy investments, including environmental standards. Russia has not ratified the charter.⁷ Asia has no emergency oil supply disruption mechanism similar to the IEA, although Japan is a member of the IEA and the organization is extending its dialogue with China and other non-member states in Asia. Uncertainties about the details of Chinese energy plans and contradictions among various Russian laws also present obstacles.

Prospects for Cooperation on Environmental Issues

Despite these obstacles, the potential benefits of cooperation in Sakhalin's offshore oil and gas development are compelling. I came away from my visit with a great deal of admiration for those involved in various aspects of offshore oil and gas development and encouraged that the process of building consensus and

⁴ One of the most articulate spokesmen for this perspective is Dr. Kengo Asakura of Mitsubishi Research Institute, who is also Deputy Secretary General of the Northeast Asian Natural Gas Pipeline Forum.

⁵ For an analysis of the costs and economic issues associated with pipeline and LNG infrastructure, see Asia Pacific Research Center, *Natural Gas Infrastructure Development: Northeast Asia Costs and Benefits*, Tokyo, Japan, 2000.

⁶ In 1997, Sakhalin's trade amounted to \$1147 per person, well above the national average for Russian regions. Data provided by the Ministry of Foreign Economic Relations.

⁷ Although Russian energy officials have indicated that charter ratification is a priority, it has been difficult to persuade certain elements in the Duma. One set of issues relates to the fact that the charter has implications for Russia's trade relations with former Soviet Union states.

cooperation, although difficult, is moving forward.

There is no question that delays and contradictory regulations and legislative disputes leave many frustrated with the pace of the projects. Company officials must secure more than 1,000 permits for each project and uncertainty about such fundamental questions as whether tax exemptions will be maintained is a continuing concern. Companies have found it difficult to get tax refunds (VAT) that are due. Revisions to the tax code, harmonization with PSA provisions and other issues relating to taxes affecting energy sector projects are major issues for investors that are currently under discussion. Understanding who has regulatory authority over which aspects of the projects and how to obtain needed approvals is a major task for the firms involved. Some pursue a strategy of working with local officials while others take their case directly to Moscow.

The growing complexity of decision-making reflects the myriad of interests at stake including participating companies from Russia, Japan and the United States, regional and federal administrators and legislators, affected industries such as fisheries, environmental groups, as well as scientists and technical experts. From a long-term perspective, the arduous process of building consensus on technically complicated and politically sensitive environmental issues illustrates the development of mechanisms that may provide a foundation for sound decision-making in the future.

Russian federal laws covering oil and gas exploration were developed to deal with onshore activities. Applied to offshore activities, the laws and regulations are among the world's strictest in terms of environmental provisions, and the standards have not been met and may not be measurable using conventional laboratory techniques. Russian oil companies have a very poor record with regard to environmental pollution caused by onshore facilities.⁸ Inconsistencies between federal and regional and local laws and regulations are also a general problem in Russia today and not limited to energy fields. These inconsistencies were highlighted by President Vladimir Putin as a prime reason for a new regional reorganization plan announced in May 2000. The offshore fields lie within the 12 mile territorial limit. As a result, regional authorities have a say, but federal authorizations remain critical to the projects. The regional administration and Duma must work with federal officials who have delayed instituting some needed reforms that the investors in the offshore projects and local officials have seen as necessary. These delays have been frustrating to Sakhalin officials, including Governor Igor Farkhutdinov, who has communicated directly with President Putin about a number of issues regarding the Sakhalin offshore projects that have not been resolved at the federal level and caused a near stall in the projects.

At the center of the controversy over environmental issues is the local environmental committee, chaired by Natalia Onishchenko. Under Onishchenko's leadership, the committee has attempted to strike a balance that permits development while ensuring environmental protection. Although environmental activists have criticized the efforts of the committee as inadequate, the committee has prosecuted seven cases and imposed fines for violations of environmental regulations. In a culture where information sharing is the exception rather than the norm, the committee is the one organization that has attempted to assemble all relevant data when disputes have arisen and to conduct a professional, neutral review.

In 1999, three environmental issues relating to oil and gas development offshore Sakhalin received widespread public attention. One incident involved the death of a huge number of fish in a bay on the East Coast of Sakhalin. Environmentalists contend that 5000 tons of herring died and that the cause was the Molikpaq offshore production platform.⁹ The Environmental Committee collected information from the environmentalists, Sakhalin Energy and the participating companies in the Sakhalin II project, and a number of experts at various Russian research institutions on Sakhalin and in other areas of Russia. The tests for toxic contaminants in the dead fish did not confirm the charge that offshore production caused the death of the fish.¹⁰ Although the Environmental Committee chair notes that it is difficult to be "100 percent certain" based on the existing evidence, the research institutes consulted generally concluded that the death of the fish may have resulted from an increase in temperature caused by a blockage of ice around the mouth of the bay. Local enforcement agencies, including the Sakhalin Fish Inspection authority at Okha, which has investigative responsibility, accepted this conclusion.

The most controversial environmental dispute arose in 1999 over the Sakhalin I project's plans for dealing with by-products from drilling. Led by ExxonMobil, the project planned to discharge the mud and cuttings into the ocean. The State Environmental Committee (federal level) determined that this would violate Russian regulations or laws, but the Prime Minister's Office subsequently gave a special exemption to this determination. The Committee was subsequently merged into the Natural Resources Ministry, a change many see as a direct response to its stance on this issue. The companies, however, were unwilling to proceed lacking a positive determination by the State Environmental Committee. The companies submitted a revised proposal to reinject the byproducts into the ocean floor. This proposal was approved in April 2000, but obtaining all the necessary permits needed for Sakhalin I to resume work this summer on one exploratory well has been a time-consuming process. Environmentalists who raised

⁸ Stanislov Patin, *Environmental Impact of the Onshore Oil and Gas Industry*, East Northport, New York: EcoMonitoring Publishers, 1999.

⁹ Dmitry Lisitsyn, Director of Ecological Watch of Sakhalin, interview, May 23, 2000.

¹⁰ Samples from the fish taken by the environmentalists were reportedly taken one month after the problem was first detected. Only one of those samples showed a concentration of environmental contaminants. A number of experts have questioned the sampling procedures.

concerns that discharge into the open ocean would endanger fish call the determination requiring use of the reinjection technique a victory, despite the fact that such discharges are conducted in offshore drilling areas in other parts of the world.

Scientists at the SakhNIRO Ecological Research Laboratory note that at present there is inadequate data to confirm that changes in the marine life (such as a decrease in plankton) are directly attributable to offshore drilling. Due to the turbulence of the ocean waters, more data collection will be needed in order to provide a basis for assessments of potential impact in the longer term. Nevertheless, a number of experts disagree that reinjection is the best approach, noting that careful monitoring of discharge would provide a better baseline for an environmental assessment. Whether the considerable additional costs associated with the reinjection approach will be justified in terms of reduced risk of damage to the environment remains an open question.

A third area of environmental controversy centers on oil spills, including a spill that occurred in September 1999 from the Vityaz Marine Terminal, part of the Sakhalin II project. Although disagreement continues over exactly how much oil was actually spilled, most experts say that it was comparatively serious. News of the spill stimulated great concern -- not only on Sakhalin but also in Japan where members of the Diet (parliament) and fishery interests have been watching developments closely. A group of experts on oil spill prevention prepared a report, which highlights the danger of oil spills to this biologically rich marine area. The report includes a detailed list of recommendations.¹¹ The company (Sakhalin Energy) agreed to pay a fine, although it did not agree with conclusions about the amount of oil spilled.

Efforts to address environmental issues associated with offshore oil and gas development have spawned a host of new companies and organizations, many of them involving international cooperation. Improved environmental monitoring is key to assess damage caused by accidents and to provide a basis for sound regulation. The Environmental Company of Sakhalin, for example, has conducted studies for Sakhalin I that supported the plan to discharge into the ocean. The company hopes also to participate in monitoring of the area as reinjection proceeds. Each major project has contracted with experts to assess potential environmental impacts. The Russian Geographical Society, which has recently reestablished its Sakhalin branch, has a proposal for an environmental monitoring project.¹² There is clearly a need for deepened international cooperation in sharing data and in ongoing monitoring efforts. Such cooperation will have to surmount reluctance to share information and the fact that environmental analysis done for companies is generally proprietary.

New companies and organizations have also

proliferated to deal with background surveys and oil spill prevention. Competition for contracts and resources had intensified to the point that one observer described it as a "free for all." The DMVR Emergency Response Center, EcoShelf and other organizations are working on various projects, including research and hands-on operational plans for dealing with responses. Research done in cooperation with Japanese organizations has shown the potential damage to fisheries (which are by some accounts the most important fishing zone in the world) from oil spills offshore Sakhalin.

Regional governments and other organizations in the United States, Japan, Russia, South Korea, and other nations have for years cooperated to establish the Northern Forum, with its secretariat based in Alaska. The Forum and other international organizations are working on problems such as the need for mutually recognized certification of experts who can gain quick access to emergency locations, as well as customs and other legal differences that impede cooperation. Memories of a recent oil spill near the coast of Japan that involved a Russian vessel are painful. In that case, Russian experts were unable to board the ship, due to customs regulations. Joint oil drill exercises have included Japanese and Russians, and the US has provided grants for the purchase of emergency response equipment. However, more will need to be done to enable hands-on, practical cooperation. Cooperation between Japan and Russia, in particular, is needed to flesh out the specifics of what various actors can do in the event of a spill. An MOU with Japan's Maritime Disaster Prevention Center (under the Japanese Ministry of Transportation) must be fully implemented. In addition, a comprehensive review of company plans for dealing with spills would also be useful to identify where the gaps lie and how best to integrate them with the regional and federal emergency response programs.

Recent positive steps indicate momentum is building for cooperation. The Governors of Hokkaido and Sakhalin have signed an agreement to cooperate, and Sakhalin experts look forward to Alaska's signature of an amended agreement. Improvements in vessel monitoring are planned in order to improve control of tanker traffic. But there is also a potential for redundancy and competition. Fisheries leaders plan to establish a satellite monitoring system. There is nothing approaching the US unified committee to coordinate and clarify responsibility among the numerous actors and levels of administration. Thus, despite the encouraging signs, much remains to be done and there is a real urgency for tangible international cooperation in environmental monitoring and oil spill response. Success in dealing with these issues will have significant impacts on the pace and nature of offshore oil and gas development.

¹¹ Dan Lawn, Rick Steiner, and Jonathan Wills, "Sakhalin's Oil: Doing it Right; Applying Global Standards to Public Participation, Environmental Monitoring, Oil Spill Prevention and Response and Liability Standards in the Sakhalin Oblast of the Russian Federation," Publication of Sakhalin Environment Watch and the Pacific Environment and Resources Center, November 1999.

¹² The Society members claim that their methodology is cost effective and that Russian law requires the use of Russian scientists.

Requirements for Economic Leadership

I encountered a surprising range of views with respect to the likelihood of Sakhalin becoming a major supplier of oil and gas to Northeast Asia. In many ways, Japan is the most logical customer and partner, given its proximity, large energy market and the prominence of economic issues in the September 2000 summit between Japanese Prime Minister Mori and Russian President Putin. Some of the closest observers, however, remain pessimistic. Unlike the situation a few years ago when Japanese industry leaders like Mr. Anzai of Tokyo Gas championed projects in the Russian Far East, there are only a handful of truly energetic private sector leaders in Japan promoting Sakhalin development. Japanese electric industry leaders remain focused on nuclear power and LNG; they are generally skeptical about the economic rationale of pipeline gas.

These understandable reservations notwithstanding, some Japanese experts talked of a "real possibility" of a Japanese-Russian peace treaty in view of the fact that younger and more energetic people have now taken the helm in the Russian foreign ministry. In MITI as well there is a marked change in atmosphere, now that Japan has embarked on a wholesale review of its energy policy and plans for building additional nuclear plants have been scaled back. Today gas looks like the fuel of the future and Sakhalin's resources are close at hand. In addition, energetic younger trading company, think tank experts and academics have built an international network with counterparts in other Northeast Asian countries. Together they share a vision of a networked Asia with gas as the lifeblood of the integrated market.

This context has inspired some new ideas that require government as well as private sector action. One proposal would be for the Government of Japan to subsidize the purchase of Sakhalin oil and gas through official development assistance. This would require a change from current Japanese policy, which does not provide ODA to Russia, perhaps an exception for Sakhalin. Another approach would require the government of Japan to support building of pipeline infrastructure in Japan through low interest loans, based on agreement to facilitate use of existing national highway and railway land rights. Kengo Asakura of Mitsubishi Research Institute has developed an economic scenario analysis that shows the feasibility of supplying 30 million tons annually of pipeline gas to Japan by 2010 if Japan provides incentives for use of co-generation equipment.¹³ This scenario assumes that gas imports from Russia (including LNG) would be limited to 30% of Japan's requirements for security reasons. The Baker Institute (Rice University) also favors investment in a national pipeline system in Japan because of its expected payoffs in terms of efficiency, competition and diversification of gas suppliers to Japan, as well as the stimulus it would provide to

Russian export projects.

In South Korea, however, the focus of attention today is Siberian gas rather than gas from Sakhalin. Even before the recent North-South summit, proposals for gas pipeline and electricity grid connection projects were being discussed as blue-sky schemes. Plans for market deregulation and division of the Kogas (the national monopoly) have been developed. In the near-term, additional imports of LNG are the most attractive, but South Korea has been actively pursuing cooperation with Russia in Siberia and the President of Kogas proposed work with Russia on a gas development in Irkutsk. As long-term contracts begin to expire in the later part of this decade, Korea will need more gas and it makes sense from a Korean perspective to keep the options open. At this point, no one knows exactly how new gas import contracts will be negotiated, in view of the division of Kogas.

In addition to prospects for warmer political relationships among a number of countries in the region, one economic factor will have an important impact on the future of gas in Northeast Asia. Although for the present ample supplies contracted earlier in long-term contracts dampen incentives for investment in costly infrastructure projects, most close observers anticipate that this situation will change in the course of the next decade as shorter term contracts are negotiated by buyers who have the leverage to garner more flexibility. If Sakhalin gas is in the first wave of shorter term contracts, this would provide an additional incentive to buyers in the region. In addition, a principle of open access to infrastructure such as LNG terminals and pipelines would reinforce trends toward greater reliance on market competition. Governments could provide leadership by cooperation in development of common rules of the road for transit, as well as environmental and safety regulation.

Conclusion

In thinking about the future of Sakhalin's offshore oil and gas projects, the decisions that will be most important in the next few years are those that will be made by Russian officials. If overlaps in jurisdiction, contradictory regulations and discriminatory treatment that favors Russian firms over foreign-based companies are ended and firm commitments are made to honoring and expanding the PSA's, Russian officials will provide strong incentives to foreign investors. Clarifying tax treatment for cooperation among PSA projects would also help to encourage cooperation in infrastructure development, environmental assessments and emergency response. If they cooperate with other countries in working out transit rights, cooperation in environmental monitoring and emergency response, prospects for Western loans and grants as well as private investment, will increase.

At this stage it is too early to say whether President Putin's regional reorganization will have these effects.

¹³ *Kokudo Kansen Gasu Paipurain Seibi to Saharin - Hokkaido Jukan Paipurain* [National Trunkline Gas Pipeline Plan for Linking Sakhalin and Hokkaido], May 9, 2000.

The decision to simplify regional administration, like the decision to eliminate the State Environmental Committee (federal level) and to incorporate it into the Ministry of Natural Resources at the federal and regional levels, is being watched closely by all concerned parties. Those who are committed to Sakhalin's development both on Sakhalin and in other places hope that the strong support for PSAs and foreign investment articulated by President Putin will produce concrete results.

The news that Marathon Oil was selling its shares in the Sakhalin II project to Royal Dutch/Shell illustrates the challenges that these projects pose for the investors who must consider cash flow and returns to shareholders in the near term. Shell is well positioned to take a consolidated leadership role in the project, particularly as it moves toward the stage of gas production and sales. Nevertheless, Marathon's decision to swap its 35.7% share in the Sakhalin II project for assets near the UK and in the Gulf of Mexico underscores the importance of the economic calculus to the corporations involved and the need to demonstrate results. Although large oil companies like BP Amoco and large electric power companies like Tokyo Electric make annual investments of more than \$10 billion, they look carefully at the prospects of near-term returns when investing in large infrastructure projects.¹⁴ Sakhalin must compete with other sites for oil and gas development around the world and the projects must show progress in order to ensure that they continue to be viewed as priority projects.

The United States has an interest in the Sakhalin projects, both in terms of the contribution they could make to address Asia's energy security dilemma, as well as to Russian economic development. Support for technical cooperation, such as US Government funding for environmental monitoring and analytical equipment, will yield significant benefits. The US-Russian regional initiative, launched in 1997 as a joint effort of the governments, provides a framework for governmental cooperation that promotes technical training and other forms of cooperation. The objective is to promote a collaborative effort among the United States and Russia, regional representatives, and the private sectors of both countries to set priorities for improving the business

climate, enhancing social services, supporting investment and supporting democracy. Activities supported include the development of a business plan for the Sakhalin Development Agency, training for companies involved in US-Russian projects, and projects to support sustainable development (in areas such as energy efficiency, environmental management). US AID has given \$750,000 grant to the State of Alaska to assist the Russian economy through environmental monitoring and other projects. The World Bank and other international organizations could also play a larger role in promoting gas trade in Northeast Asia by supporting regional assessments that identify opportunities, economic issues and environmental effects.

Japan, as Northeast Asia's major gas consumer today and the market closest to Sakhalin, also has major interests at stake. Despite the keen interest on the part of many industrialists and some politicians, however, Japan needs to build a consensus on next steps and this will require private and public sector involvement. In moving forward, Japanese experts familiar with environmental engineering, infrastructure development and fisheries management experts, as well as non-governmental organizations interested in Northeast Asian security, need to be more deeply engaged.

Sakhalin is a good example of new forms of multilateral cooperation in Northeast Asia that are driven primarily by private sector interest. The evolution of processes for building consensus on controversial environmental issues, the learning by doing that joint ventures provide and the forward-looking thinking of experts in the region who have the vision to imagine a new and more integrated energy market are all strong assets. The challenge is to work through the problems and to demonstrate positive and environmentally friendly results in the near-term so that confidence increases and cooperation expands in a timely fashion. This is the best way for Sakhalin to fulfill its potential as an energy producer for the region and as a growing regional economy that provides economic benefits to its citizens. Sakhalin oil and gas development challenges us to redefine concepts of "energy security" in order to take account of these common interests.

¹⁴ BP Amoco has joined up with Petro China to work on gas distribution in the Yangtze Valley of China and bought 20% of the Chinese firm's initial public offering.