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SIBERIAN ENERGY FOR JAPAN AND THE UNITED STATES

Case Study by RAYMOND J. ALBRIGHT

DEPARTMENT OF STATE
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FIFTEENTH SESSION

SENIOR SEMINAR IN FOREIGN POLICY

DEPARTMENT OF STATE

1972–73

THIS IS AN EDUCATIONAL EXERCISE AND DOES NOT NECESSARILY REPRESENT THE VIEWPOINT OF THE SENIOR SEMINAR IN FOREIGN POLICY OR OF THE DEPARTMENT OF STATE

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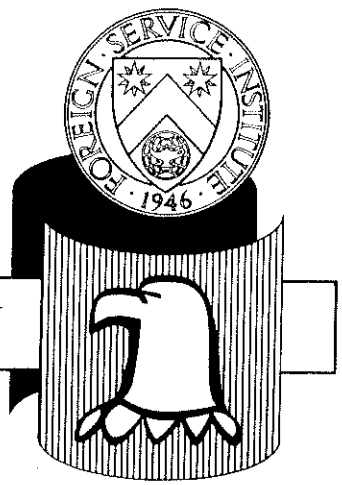

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SUMMARY

Japan and the US have similar problems in their accelerating demand for energy and heavy reliance on energy imports. Measures to meet energy requirements are centrally important to economic and foreign policies of both countries. The common course of detente with the USSR leads to parallel interests in acquiring Siberian energy. Project negotiations are seriously underway by Japanese and US companies with the USSR, and these developments pose new policy questions for the governments in Washington and Tokyo.

Japanese policy responses stress the goals of: diversity in energy sources according to geography, country, political system and supplying company; supply stability; environmental standards; cost savings; and international cooperation where it will serve the other goals. Following these guidelines Japanese firms want to conclude contracts for coking coal from Yakutia, oil from Tyumen and LNG from Yakutsk. Prime Minister Tanaka has endorsed in principle this approach for Japanese energy from Siberia.

Japanese company negotiations with the USSR have met greatest difficulty over issues of price, credit terms, reciprocal supply and purchase assurances, and inadequate Soviet data on which to base business conclusions. Japanese government guidance or action is awaited on key issues, particularly the Soviet request to obtain for the first time direct bank loans to USSR parties. Nationalist tendencies in Japanese business toward securing energy resources for Japan alone are being reversed by government agencies which seek to add political stability and to spread financial costs and risks by including US firms in Siberian projects.

Two US consortia are competing with proposals for Yakutsk LNG in active negotiations with the USSR, and both have begun cooperation with Japanese firms. The consortia believe that the project is economically and politically feasible, if USSR leaders give it the required priority to mobilize the Soviet resources and bureaucracy. As negotiations proceed the consortia will seek to clarify US government views toward central issues. Where do large LNG imports from Siberia fit in the apparent conflict between greater US self-sufficiency in energy and expansion of commercial relations with the USSR? How will US prices of imported LNG be determined? What alternatives exist to Johnson Act repeal if credit negotiations require unprecedented long-term financing? Will sufficient Export-Import Bank capacity be available? Should there be a US-USSR governmental "umbrella agreement" to reinforce points in the commercial contract of national policy importance, e.g. price, supply interruption, arbitration, balance of payments?

The Japanese and US international search for energy is becoming a test case of cooperation or competition in international trade and monetary affairs. Long-term implications for US foreign, security, economic and environmental policies of the US approach to international energy questions require US governmental organization which can monitor rapid developments and respond with timely decisions, guidance and action.

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I. INTRODUCTION

Japan's economy depends on imports for the bulk of its resources, and this dependency is particularly acute in energy. The necessity to live with an "energy import crisis" throughout its industrial development has been a central influence upon Japanese economic and foreign policies. Rising concerns in the industrialized world generally over potential global energy shortages have further stimulated already active Japanese energy development programs.

Japanese planners focus particularly on what the US does, as the world's largest energy consumer, to satisfy US needs. Could US demand pre-empt global petroleum, natural gas and coal supplies at the expense of Japanese needs? Could relations between US international oil companies and OPEC (Organization of Petroleum Exporting Countries) complicate OPEC supply to Japan? The US, in turn, has a real interest in how Japanese practices affect world energy supply, since Japan is the world's largest energy importer.

Mutual US-Japanese interest in energy resource management overlaps a parallel mutual interest in the evolving detente with the USSR. On the Soviet side detente economics are based on a desire for foreign capital and technology, and foreign trade and exchange, to accelerate internal development. Interests of the non-communist world lie in expanded exports and access to the Soviet Union's plentiful energy and other raw materials.

These parallel interests and policies have led both Japan and the US -- with considerable Soviet encouragement -- to look seriously at possible development of Siberian oil and gas to help safisfy their accelerating energy demands. Given its import dependency and proximity to Siberia, Japan has been looking longer and closer at Siberian potential, but US companies recently have been equally active and cooperation has begun between US and Japanese firms.

What are the principal economic and policy motivations and constraints influencing Japan to look to Siberian energy? What are the major projects under consideration? What are the prospects and problems concerning participation by US companies in these projects? What are the US Government interests in these developments? Are requirements emerging for new US policies? What tentative conclusions can be drawn about an appropriate US Government approach to these developments? Such questions were the focus of this study.

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A substantial portion of research for the study was conducted through discussions with businessmen and bankers in the US and Japan. Interviews with academicians and government officials in the US, Japan and the USSR added to the findings. A list of the companies, banks and government offices with whom discussions were held is attached (see Appendix). Although individual names are excluded to respect their requested confidential cooperation, the author deeply appreciates the time which a number of senior officials generously allowed for interviews.

II. JAPANESE ENERGY REQUIREMENTS

Japan's high rate of industrial growth has accelerated demand for raw material imports in an economy already largely dependent upon imports for natural resources. Projections for continued rapid growth (albeit at some reduced rate) indicate that Japan will remain the world's largest importer of natural resources; a position which it achieved in 1967. Rapid growth has required major increases in energy imports, since Japan depends on imports for about 85% of its total energy. This dependency will continue, as Japanese statistics for 1970, 1975 and 1985 show 99% of petroleum needs, coming from imports; coal imports rising from 60 to 87% of total supply and natural gas rising from 33 to at least 60% dependency on imports. (See Table 1).

Recent conversations in Tokyo reveal that Japanese government and industrial planners are revising somewhat the composition of Japanese energy supply shown in Table 1, although not the import dependence. Total demand is expected to exceed earlier estimates, with expansion mainly in petroleum and natural gas. Petroleum will remain by far the largest source, accounting for about 70% of total supply. Growing Japanese demand for oil is illustrated by Japanese estimates for future imports: CY1970 - 4 million barrels/day; 1975 - 5.9; 1980 - 10.7; 1985 - 12 to 15.8 million. (See Table 2). The lower estimate for 1985 still appears in official MITI presentations, but other Japanese sources have indicated that the higher estimate is more realistic.

Import planning for liquified natural gas (LNG) is drastically revising upward the following projections which are still officially used (Japanese Fiscal Year April - March): 1970 - 142 million cubic feet/day; 1975 - 490; 1985 - 1,500. (See Table 3). From industry sources in Japan and the US it is known that actual projects underway, or in final planning stages, will provide Japan between 1980 and 1985 more than double the LNG contained in the official estimates. (See Table 4).

The industry estimate of 28 to 30 million tons/year (3.8 to 4.1 billion cubic feet/day) is based on domestic consumption trends and plans. Natural gas is increasingly popular to meet the growing emphasis on environmental control. At the same time consuming companies, such as Tokyo Electric and

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Osaka Gas, see accelerating demand for industrial gas uses, large building heating and electric power generation. (However, electric power generation may not take as much gas if conservation programs recognize the inefficiency of using gas for generators to produce electricity which is then used for heat).

The estimated increasing reliance on imported coal results particularly from projected needs for coking coal. Japan already is expanding overseas supply sources, and some Japanese sources point out that these probably will have to be adequate in volume and quality to substitute for the high grade, heavy "Pocahontas" coke for which Japan is now relying on the US.

Balance of payments costs of Japan's dependence on overseas energy resources have also been rising steadily. To Japan's good fortune its capacity to pay has been expanding simultaneously, and it is continued Japanese policy to maintain a sufficient export base to obtain the energy and other natural resources on which its economy depends. A look at the trade record indicates that the price of energy imports has taken a steadily rising percentage of total imports and total trade -- increasing from 17.9% of imports in 1963 to 24.3% in 1972, and from 9.9 to 10.9% of total trade. (See Table 5)

III. JAPANESE POLICY APPROACH TO SATISFY ENERGY DEMAND

Interviews with Japanese industry and government officials bring out broad consistency as to policy principles which guide the nation's steps to satisfy the demand for energy imports. Five major themes emerge: diversity of source, stability of supply, environmental standards (low sulphur petroleum), cost savings, international cooperation where it will serve the other goals.

A. Diversification of Source; Low Sulphur Wherever Possible

Japan turns to source diversification (including expanded exploration and development) to assure supply in the face of growing competition for sources among the industrial nations. Through diversification by region, country, political system and character of supplying company the goal is to reduce excessive dependency on any one source and have sufficient alternatives to prevent serious harm to the Japanese economy in the event of supply interruptions.

Being so dependent on oil imports (70% of total energy), the greatest attention is focused on sources of crude. Currently 86% of Japan's petroleum comes from the Middle East and 12% from Southeast Asia, with about 95% coming from countries belonging to OPEC. Iran, Saudi Arabia, Indonesia and Kuwait (in that order) are the largest country suppliers, totalling about 80% of Japan's deliveries, with Iran supplying almost one-half of Japan's total take. Japanese companies buy primarily through foreign suppliers: 59% from the "majors"

(major international suppliers, Exxon, Texaco, Standard Oil of California, Mobil, British Petroleum and Shell), 12% from US independent oil companies and only 10% from Japanese suppliers.

The quest for diversity has led Japanese officials of industry and government to scrutinize global developments in new field discoveries, technological progress in extracting oil from tar sands and shale, and new sources for low sulphur oil or processes for reducing sulphur content in petroleum. (Sulphur content of 1% is the target for all new crude). Source diversity, it is hoped, will also enhance stability and cost by allowing any one source less leverage to threaten Japan with interruption or to bargain for higher prices.

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B. Stability of Supply and Cost Savings

Supply stability is being sought through measures which range from foreign policy to new investment approaches. Japan's overall foreign policy stance of non-militarism can be partly attributed to an effort to avoid antagonizing potential sources of natural resources, particulary energy. Minimum friction in international relations with energy suppliers has also characterized its approach to OPEC. Japan consistently opposes any organization of consumer nations in the belief that bloc politics of consumers vs. OPEC will only make OPEC less cooperative in supply, and particularly in price. As the largest world oil importer, Japan would suffer the most.

Japan is also seeking stability, and cost savings, through new forms of direct participation by Japanese companies in oil exploration, extraction and marketing. While Japan may not be certain that this more direct role will remove the political risk of supply interruption, such approach is expected to reduce costs by reducing dependence on the "majors". Japanese companies are exploring joint ventures with international oil companies, with government companies in oil-producing nations and source development on their own with contract technical support from foreign companies. To enhance this capability at least four new Japanese companies have been established since January 1973 -- with governmental encouragement -- for petroleum (and gas) development projects: Toyo Oil Development Co., Ltd., Fuyo Oil Development Co., Ltd., Sumitomo Oil Development Co., Ltd., World Energy Development Co. These firms augment those established between 1969 and 1972: Mitsui Oil Development Co., Mitsubishi Oil Development Co., and Overseas Petroleum Development Co. All of these companies have similar structures, assembling their capital and operating capabilities from trading companies, oil refiners, technical and exploration companies, plant and construction companies, major Japanese consumer/distributors, and shipping firms. They usually have a major Japanese bank at the center.

The most dramatic move to date through the new investment program was purchase by a Japanese group in 1973 of 30% participation in the British Petroleum marina at Abu Dhabi

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for $780 million. This single transaction was twice the total Japanese investment in energy sources abroad over the last 20 years. The experience will be reviewed closely, because industry sources note that Japanese willingness to pay this amount -- after international companies rejected it as excessively high -- contributed directly to price increases shortly thereafter by OPEC suppliers. The established governmental goal is to obtain 30% of Japanese petroleum from sources financially controlled by Japanese capital. Set in the late 1960's, this target was to be achieved by 1980, but has been extended to 1985 and appears to be more of a general indicator to the business world than a realistically attainable objective.

Dramatic improvement in the Japanese balance of payments in recent years has strengthened the financial capability to expand energy investment abroad. Japan has emerged as a major capital exporting country, with reserves at the end of 1972 of $18.3 billion. Its long term capital outflows in 1972 of $5 billion were over twice the rate of 1971. In view of Japan's favorable foreign exchange position, the Export-Import Bank of Japan has adopted a new policy which facilitates these new energy investments at the same time that it contributes to the reduced governmental encouragement of exports generally. The Bank has tightened its terms for participation in export financing while it has improved its facilities for financing projects involving raw material and energy resources for delivery to Japan. This "import financing" may include exports of Japanese equipment to develop the overseas source of materials. It also now permits use of the financing to cover other project costs, such as equipment or services from the local country or a third country. Export-Import Bank credits to a joint venture between a Japanese and non-Japanese firm can also be untied for financing procurement outside Japan. Finance Ministry and Exim Bank sources say that this partial untying of credit lies within existing legal authority to untie credits completely if authorized by the cabinet.

Japan also appears to have stability in energy supply in mind as it develops its technical and financial assistance programs. It is interesting to note the major participation of Japanese firms in the economic development program of Iran, the country from which Japan imports about one-half of its petroleum. Some circles in Japan are also considering a possible economic cooperation agreement between Japan and OPEC (or some OPEC members), to assure regular flow of crude in return for Japanese capital and technology.

To deal with emergency situations, Japan has gradually been increasing its stockpile of crude and petroleum products. One time at 25 days supply the policy is now 45 days, with plans to increase this to 75 days by 1975. Japan also has been active in discussions within OECD and bilaterally about emergency measures to deal with supply interruptions.

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C International Cooperation

As Japan and other industrialized nations have become more aware of impending energy shortages and the considerable lead-times for replacement supply, they have increased their governmental consultations about possible forms of international cooperation. Until recently "consultations" within OECD on the problem have been rather pro forma -- except during Arab-Israeli hostilities. The US and Japan, at the same time that they are developing new energy programs of their own, are now taking the lead in international consultations. They are moving beyond coordination of supply in an emergency to consider broader possibilities of cooperation:

-- joint or coordinated research on new forms of energy, and on more effective and cleaner use of known fossile fuels

-- organization of consumer nations to negotiate as a group with OPEC

-- expanded bilateral consultation and coordination of policies among consumer nations

-- development of some governmental group which would include both consumer and producer nations

-- finding mechanisms for consultations at governmental levels in which business representatives could also participate.

While interested in improved international cooperation, Japanese government representatives when interviewed, were less precise about the form for such cooperation. Clearly they opposed an organization of consumer nations to confront OPEC, fearing this would make matters only worse for Japan. They favored some bilateral or multilateral forum in which business representatives could participate with government officials. They also speculated about the desirability of moving toward some international arrangement in which supplier and consumer nations could meet together. They recommended that consultations become "real, specific, concrete", and that they should become a basis for action, in contrast to the "general and unproductive" consultations to date. As an indication of desire for more concrete action the Japanese Government dispatched select teams of inquiry in the spring of 1973 to Canada and the US, to Europe and to the Middle East to conduct broad discussions with governments and business communities about energy supply and demand in the world.

While talk about greater cooperation is proceeding relatively slowly at governmental levels, the Japanese businessman is moving much more rapidly -- encouraged by his government's high priority on energy. As mentioned above, the establish-

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ment of new oil development corporations accelerated in 1973, Japan invested heavily in BP holdings in Abu Dhabi, and an elaborate network of LNG facilities are emerging with Japanese participation from Abu Dhabi to Australia.

For the Japanese businessman the most logical business partners are in the US. US companies are also interested in accelerated development of energy to meet rapidly rising demand in the US and Europe. US companies have the most advanced technology related to oil and gas exploration, extraction and marketing. The large costs associated with the emerging new sources of energy suggest the value of spreading capital sources and sharing risks. In politically unstable areas, or in areas sensitive to potential Japanese economic domination, it could be very useful for Japanese to have a partner (particularly the US) as a further deterrent to price or supply leverage by the host country. While some business representatives in the US and Japan were concerned about increasing competition with each other for energy resources, more expressed the view that the reasons mentioned above encouraged greater cooperation than competition.

IV. PROPOSED JAPANESE ENERGY PROJECTS IN SIBERIA AND POSSIBLE US PARTICIPATION

In view of its future energy demand and current sourcing policies of diversification, stability, cost savings, environmental quality and international cooperation, it was natural for Japan to take a close look at energy resource imports from Siberia. What were only general ideas for many years became more genuine possibilities with the emergence of US detente with the USSR and China, which in turn facilitated similar rapprochement by Japan with these two countries. New Soviet policies to encourage non-communist capital and technology to come into the USSR to develop raw material and other Soviet exports completed the circle. The extensive Siberian coal, oil and gas fields offered a new geographic area to the diversification goal; cost savings might accrue from closer transportation; the stability equation has a "plus" for a stable political regime but a "minus" for unpredictable Soviet policies. Siberian fields have considerable low sulphur oil, and parallel US interests in Siberian energy suggest possibilities for international cooperation to mutual benefit.

A. Japanese Proposals

Cooperation with the USSR in Siberian energy projects would not be a completely new experiment for Japan. It could draw on its experience since 1969 with projects in Siberia involving Japanese equipment exports with Japanese financing to develop raw materials for export to Japan. Under the stimulus of the Japan-USSR Joint Committee on Economic Cooperation established in 1965, Japanese companies negotiated three

projects with Soviet counterparts during the 1968-71 period. The timber agreement of July 1968 called for Japan to supply $133 million in equipment and $30 million in project-related consumer goods for development of timber production on the Amur River. Japanese credit for the equipment carried terms of 20% down and 5 year repayment with 5.8% interest. Arrangements through a supplier credit for the overall project also provided deferred payments on the consumer goods (but reportedly not over one year). Repayments were to be financed by Soviet exports of timber during 1969-73 to various Japanese firms which had made purchase commitments at the price negotiated in the original project contract.

A December 1970 agreement provided for Japanese sale of construction and harbor equipment and engineering support for the development of Vrangel port in eastern Siberia. Of a total project cost of $350 million, Japanese inputs of $80 million were financed by a credit with terms of 12% down and 7 years repayment at 6% interest. Following the timber agreement pattern, in December 1971 a project was concluded for developing wood chip and pulp production with deliveries to Japan during 1972-81. Japanese equipment for the project of about $50 million carried financing of 7 years at 6%. Soviet deliveries to various Japanese firms at the fixed price would provide cash flow to service the debt, plus additional income to the USSR because of possible deliveries of $80 - $100 million.

The coal, oil and gas projects which Japan now has in mind are on a much larger scale, reflecting the increased economic need and improved political environment. The following chart summarizes key project features.

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ENERGY PROJECTS IN SIBERIA
(billion - b; million - m; thousand - th)

Table 6

Project Description	Energy Supply USSR	Japan	US	Total Cost & Time/ Construction	Financing USSR	Japan	US	Export Components Japan	US
Heavy coking coal from S. Yakutia	?	5m tons/ yr. begin 1980	0	$350-400m 1974-79	?	$350m	0	$350m	0
Offshore oil/gas Sakhalin Is.	current plans only for USSR and Japan			drilling in 1974	?	$200-230m for drilling equip.	?	?	? drilling equip.
Crude oil from Tyumen (Ob River, sulphur under 1.5%). Pipeline to Nakhodka, tanker to Japan	200-600th bbls/day	600-1,000th bbls/day	200th bbls/day	$3-7b 1973-78	R2-6b	$1-1.5b	$0.2b	$1-1.5b	$0.2b
	20 year deliveries								
Plan A Yakutsk natural gas pipeline to Nakhodka, LNG tankers to Japan and US West Coast	1b cu/ft/day minimum	1b cu/ft/day	1b cu/ft/day	$6-7b plant start 1979, full supply 1981 (excl. tankers)	R1-2b	$4b (incl. 3 tankers= 0.4b)	$3.2b (incl. pipe 11 tankers= 1.4b)	$3.4b	$1.6b LNG plant
	20 year deliveries								

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Table 6 - Continued

Description	Energy Supply USSR	Japan	US	Total Cost & Time/ Construction	Financing USSR	Japan	US	Export Components Japan	US
Plan B Yakutsk pipeline to Nakhodka for US, pipeline to south tip Sakhalin for Japan	1b cu/ ft/day minimum 20 year deliveries	1b cu/ ft/day	1b cu/ ft/day	$6-7b 1979 start up, 1981 full ops (excl. tankers)	R1-2b	$4.2b (no tankers)	$2.7b (incl. 11 tankers)	$4 pipe	$1b LNG plant

Yakutsk Plans C and D

Technical alternatives have been developed for total delivery to Japan or total to the US, less USSR retention. Total project cost remains about the same with the US or Japan picking up the total non-Ruble financing. All persons interviewed in the US and Japan favored a joint Japan-US project, rather than going it alone.

Differences in Yakutsk Plans A and B.

The major cost differences stem from higher pipe purchase cost to run the longer line through Sakhalin; eliminaton of Japanese tanker costs; addition of more pipe construction for Japan from Sakhalin to Hokkaido; elimination of regassification plant in Japan; smaller and cheaper LNG plant at Nakhodka for US deliveries.

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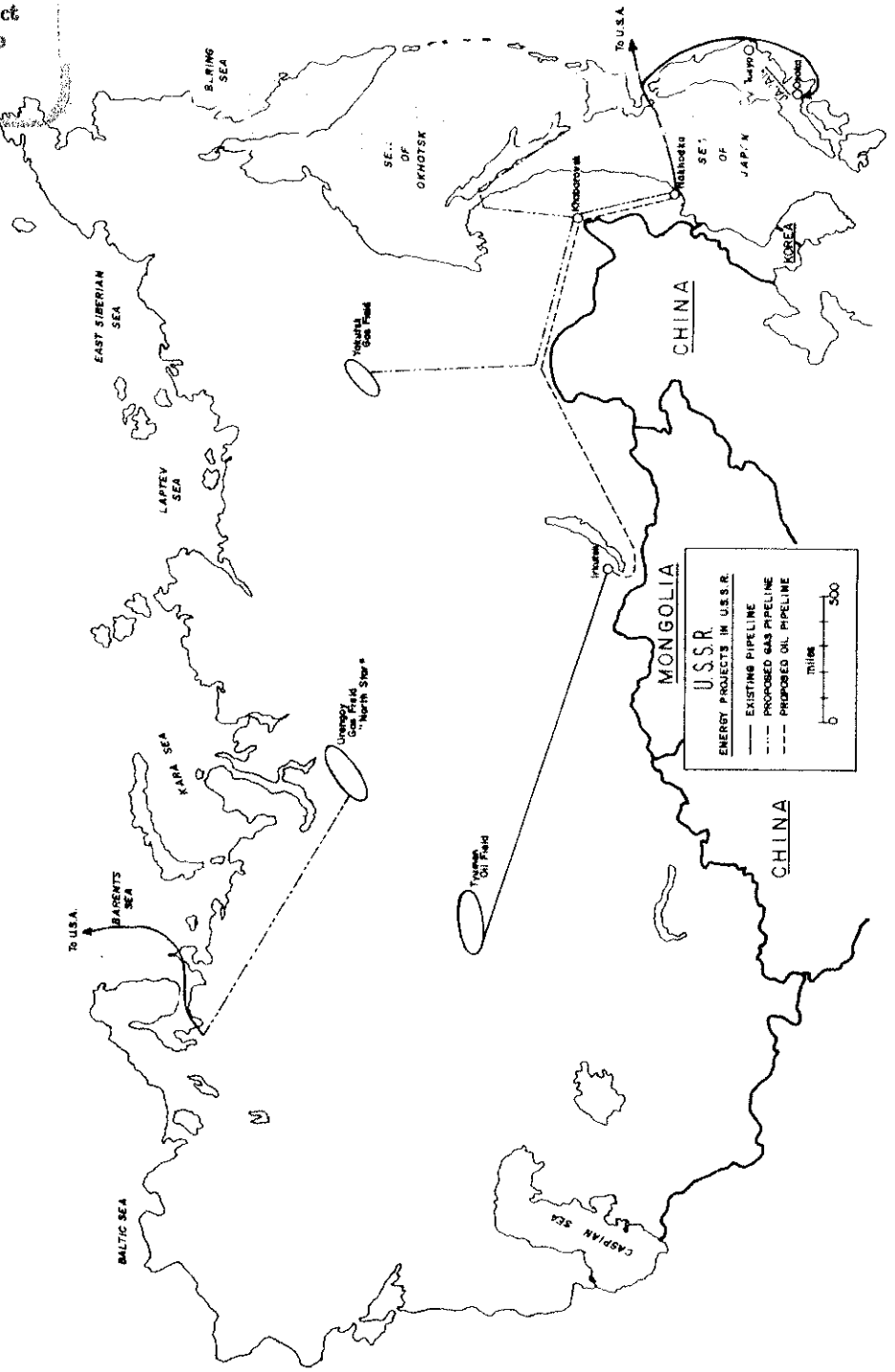

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B. Status of Projects

Intensive work is proceeding in Japanese industry and banking circles on these four projects. A separate business group has been organized to support each project and to serve as the Japanese negotiating team for the sub-committee which meets with Soviet counterparts for each project under the Japan-USSR Committee on Economic Cooperation. The momentum is greatly stimulated by the influential businessmen who are involved. Japanese Chairman of the Joint Committee is Shigeo Nagano, head of Nippon Steel and President, Japanese Chamber of Commerce. The chief of Nippon Seiko, Hiroki Imazato, heads the Japanese group for the massive Tyumen oil project. Both men have long been in the leadership of the zaikai, or most influential businessmen of Japan. Leading the Yakutsk working group is Hiroshi Anzai, Chairman of Tokyo Gas, and he has the strong support of another zaikai leader, Kazutaka Kikawada, chief of Tokyo Electric and Chairman of the Japan Committee for Economic Development. Directing the Yakutia coal project is Nagano's Managing Director in Nippon Steel, S. Tanabe.

In close consultation with government agencies, these working groups have been particularly active during the spring of 1973, looking to a meeting of the joint Japan-USSR Committee which is tentatively set for early July. The objective of each group is to reach as much agreement as possible with their Soviet contacts, so that formal agreement on at least one of these projects could be reached during the Joint Committee Meeting, or later in the year when Prime Minister Tanaka expects to visit Moscow. Conversations with each group reveal respective expectations that its project would be first, but major issues remain in each. In final analysis, it will be the Soviet Government which ultimately decides which project it wants first, and Japanese officials recognize this.

The Yakutia coal project had sufficient senior Soviet interest to bring a 60-man delegation under a Deputy Foreign Trade Minister to Tokyo in April for wide-ranging discussions. No US companies would be involved. The Japanese are satisfied that the volume and quality of heavy coking coal is available at the Siberian site, but major commercial issues remain: How much of the desired quality would the USSR agree to deliver, and on what schedule? What would be the amount and terms of Japanese credits -- would these be bank loans or supplier credits; would consumer goods credit be included? What specific types of Japanese equipment would be exported under the credits and how would these be selected?

Possible oil and gas development in Sakhalin has been under discussion since 1966 between various Japanese groups and the USSR. The current talks are led by the Japan Petroleum Development Corporation and focus on possible offshore exploration. Conflicting Soviet and Japanese estimates over possible

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onshore or offshore sources were resolved in September 1972 when the USSR finally allowed a Japanese technical team to make a survey visit. A US Gulf Oil representative accompanied the team at Japanese insistence, because US technology is deemed essential to the exploration. The team concluded that very promising oil reserves could be developed offshore, but the environment of shifting tides and ice was very difficult.

There are also difficult commercial issues. USSR negotiators have proposed a Japanese credit of $200 to $230 million to finance drilling and exploration equipment which the USSR prefers to operate. Since credit repayment would be financed by the oil found, Soviet negotiators suggested that all or some portion of the repayment be waived if no oil were found (claiming that their own costs would also bring no return). The Japanese are interested in supply, not just a financial return on a credit. Thus, they are pressing for agreement on how much oil (say, percent of discovery) would be supplied, and at what price. Further, if none is discovered, they would like assurance of supply from some other source in the USSR of the amount they seek. In addition, the usual questions of credit terms and price remain open. Japanese experience with price negotiations on this case has been particularly difficult. Soviet ministries and trading companies do not normally think in terms of "return on investment" in oil exploration talks. The Japanese find costs difficult to unravel between Soviet ministries, especially in the absence of real cost-accounting in the Soviet system. Thus, Japan has taken fair market price in comparison with international rates as the basis for negotiation.

Financing will also be complicated if a US company participates in development of any discovery. The Japanese side wants US participation to obtain special technology to handle the difficult environment, to share financing and to add "political stability" to the agreement. If the US took 20% of the external financing, Japan would expect the US to receive 20% of the production. Japanese financing for such projects usually has 30% private capital and 70% governmental funding (Petroleum Development Corp. takes risk portion and Export-Import Bank non-risk share). However, adding a third party raises difficult questions which could delay the project: Will the USSR accept a US role? What will be the shares of finance and delivery?

Negotiations on the Tyumen oil project have progressed to the point that communications have been exchanged at the highest levels of the Japanese and Soviet governments. A Japanese technical delegation was in Moscow in April to present elements of a draft general agreement, and Imazato hoped to lead a senior team for comprehensive negotiations with Soviet counterparts in May or June. The Soviet government made Japanese interest in Tyumen a test case for a Japanese govern-

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ment commitment to support its companies in Siberian projects generally, particularly through credit financing. In March 1973 Prime Minister Tanaka made a statement in the Diet which was also contained in a broader message to Soviet Party Secretary Brezhnev -- the Japanese government takes a positive attitude toward Siberian development projects and is prepared to support them when agreement is reached at the private company level. This step has permitted negotiations to proceed on the details of a general agreement.

The concept of the general agreement would be similar to the first timber project. Japan would provide pipe, port handling and other equipment for extending the existing pipeline from Tyumen to Irkutsk (4100 miles) on to the port of Nakhodka (2600 miles). Plans call for 48" pipe to provide Japan about 600,000 to 1,000,000 barrels/day. Japan would provide $1 - 1.5 billion in credit for the pipe and equipment it supplied, and it would be Soviet responsibility to arrange any necessary expansion of Tyumen wells or pipelines from Tyumen to Irkutsk. The USSR would handle all pipeline and port construction.

The US companies of Gulf and Exxon have discussed with the Japanese possible forms of participation. Japanese industry and government thinking is that the US total participation would not be over 20%, in view of the fact that Japan is taking the lead and urgently needs the oil. In fact, it is suggested that the US companies agree to market their share in Japan. With a 20% participation, the US companies would provide 20% of the external credit, have a right to tie this credit to US exports and receive 20% of the deliveries. The US companies have expressed general interest but seem to believe that they need more information about the terms of the general project agreement, especially price, before making any commitments. Japanese government sources have indicated their clear preference for US participation in finance and deliveries, but this appears to be more for adding "political stability" to the arrangements than for economic reasons. One US company will probably be assured of a share of the construction if the project proceeds. Japanese planners believe Bechtel is best qualified to engineer the port facilities.

The Yakutsk LNG gas project has also involved Japanese business and government leaders in contacts at senior levels in the USSR and US governments. During extensive interviews in Japan not one business or government representative believed that Japan should undertake this project without the US, whereas the other three projects were regarded as possible for Japan to do alone with some contracting for technical support. Two US consortia, in fact, are actively and competitively involved with Yakutsk planning -- Texas Eastern/Tenneco/Brown & Root and El Paso Gas/Occidental and Bechtel. Both consortia have been meeting with Soviet representatives and with possible Japanese partners. The Texas

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Eastern consortium has also been deeply involved in talks with the USSR about an LNG project in Western Siberia ("North Star") for gas deliveries to the US east coast. In Japan there will be only one consortium for Yakutsk LNG, headed by Anzai of Tokyo Gas.

The complexity and scale of the Yakutsk project is almost overwhelming (and "North Star" has similar difficulties). This $8-9 billion project would involve unprecedented construction challenges in an area of minus 40 degrees centigrade with over 1500 feet of permafrost. Pipelines of 48"-56" would require unique weather insulation. New exploratory drilling techniques must be tried. Financing poses new problems of size and form. Yet, the US and Japanese firms are confident that they have solutions.

Japan has developed a standard pattern whereby industry, banks, trading and shipping companies organize into consortia for major energy projects. The pattern for oil development companies was described earlier. On projects of major scale there may be a governmental designation that it is a "national project", which assures governmental financial and other support and gives the project priority in implementation. Of these four current projects, only Tyumen has been so designated to date. With this priority, Imazato has put together an impressive array of Japanese business organizations to negotiate and implement the project. On his Oil Subcommittee of the USSR-Japan Joint Committee he has 4 advisers and 5 observers from government ministries, plus about 15 representatives from the business community. For project planning in Japan he has organized five major departments: Payments (Export-Import Bank Vice-President as chairman), Import (President of major refinery as chairman), Export (President of major trading house as chairman), Port Facilities (Vice-President of Nippon Steel as chairman), and General Affairs or general agreement preparation (composed of representatives of the other departments). The network of sub-groups under these departments includes representation from a number of Japanese heavy industries, electrical companies, shipping firms, banks and some fifteen trading houses.

V. ISSUES IN JAPANESE - SOVIET NEGOTIATIONS

As Japanese negotiations with the Soviet Union about these Siberian projects approach a critical stage, major issues have emerged in two areas: 1) international politics, and 2) commercial arrangements. The international questions involve Japanese relations with China and the US in addition to the USSR. The commercial problems of such large-scale projects can scarcely be separated from the political arena. Japanese experience in both areas may be instructive for the US as it increases commercial relations with the USSR.

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A. International Politics

Since the initial Japanese-Soviet discussions in the early 1960's about possible joint projects in Siberia, Japan has regularly introduced the question of a peace treaty from World War II and the return to Japan of the nothern islands off Hokkaido (Habomai, Shikotan, Kunashir and Etorofu). Although Khrushchev showed some willingness to negotiate the return of northern territories in 1964, since then the USSR has been consistently negative and economic talks frequently have been delayed by injecting the territorial issue.

Prime Minister Tanaka adopted a new approach in March 1973. While reserving Japan's position on the territories for later talks, he informed the USSR of Japan's positive attitude toward Siberian projects (thus implying necessary governmental support -- including credits) if agreement was reached at the private company level on specific projects. At the same time, he advised the USSR that Japan expected peace treaty talks to be held again sometime later in 1973. He wanted also close regular contact between the top levels of the two governments as action proceeded on the two related tracks. Thus, economic negotiations were not directly conditional on a political settlement (although there was room for linkage at a later date). The approach seemed to be that economic cooperation now could improve the climate for later political solutions. And the USSR was prodded to more cooperative negotiations at the company level.

The Japanese government seems to have accepted the Soviet Union as a source of energy supply which politically would be sufficiently reliable to include in Japan's general program of world-wide diversification. However, government officials mention the desirability of keeping Japanese dependence on oil from the USSR to not more than 10% of total Japanese imports (even the maximum goal of 1 million barrels/day from Tyumen would be slightly less than 10% of Japan's total imports in 1980). Natural gas imports of 1 billion cubic feet/day from Yakutsk would be about 20% of total Japanese LNG imports in 1981, but this percentage would decline rapidly in later years. Nevertheless, Japanese government representatives, and some businessmen, prefer to have US firms participating in the larger projects of Tyumen oil and Yakutsk gas for political purposes -- the USSR might have less leverage than it would have on Japan alone in commercial negotiations or in possible supply interruption.

The energy projects of Tyumen and Yakutsk also involve China in the political equation. China has informed Japan of its displeasure and concern over the Tyumen oil pipeline especially. Increased oil flow to the east Siberian coast has obvious military benefits to the USSR. The PRC has also expressed general concern about the overall development of

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the economic infrastructure of Siberian areas near its borders, apparently as a long term advantage to the USSR in any territorial competition in the region. Further, Soviet use of non-communist capital for such development is ideologically reprehensible in Chinese eyes.

The Japanese current approach, given the present level of Chinese opposition, is to proceed with the Siberian projects -- including Tyumen oil -- on the basis that China will have to understand energy is so critical to Japan that it must include Siberia in its global diversification of sources. It remains to be seen whether China will intensify its opposition, possibly to the detriment of Japanese traders in PRC markets, to an extent which changes the present Japanese approach. For the present, Japan seems to be enjoying the benefits of parallel detente with Moscow and Peking. Establishing diplomatic relations with China is balanced by accelerated negoitiations for economic projects with the USSR in Siberia. Projects in Siberia might some day be balanced by oil projects with China, possibly in the promising offshore areas of the PRC. Further, if US firms are participating with Japanese companies in Siberian projects, then the PRC might be less concerned that these projects could be directed against Chinese interests by Soviet/Japanese collusion, and the PRC would have less leverage to obstruct Japan in pursuing them.

B. Commercial Issues

The Tanaka condition that Soviet agreements be reached with Japanese private companies is partly recognition of how the Japanese market economy works. It is also an effort to keep the Soviet negotiators from trying to exploit the Joint Committee framework for negotiations on a government-to-government basis. In governmental negotiations political leverage might bring the USSR better terms (e.g. for credits) but would be out of line with normal practice in the market. Japan prefers to negotiate normal commercial terms for these projects, while Soviet trading company representatives bargain hard for special treatment.

Japanese who have participated in negotiations with Soviet representatives list among the most contentious issues: price arrangements, credit terms, reciprocal assurances on supply and purchase, and site examination of resources and construction.

1. Price - In almost all negotiations a price problem appears, as was mentioned earlier, from the absence of concepts of "cost accounting" and "return on investment" in the Soviet approach. It becomes impossible to identify from Soviet data a specific cost breakdown for Soviet inputs. Consequently, the Soviet side may believe a project should be undertaken in certain ways without regard to the return on the investment -- assuming losses are made up elsewhere in the Soviet

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(but not the Japanese) system. Japanese negotiators usually take international price trends as a base, although considerable debate often results over what is the world price at any given time.

A further price problem results from fixed vs. adjustable prices. In the first Siberian projects, fixed prices were established for timber (five years) and wood chips (10 years). Before the final year of timber deliveries in 1973, the USSR passed the word "informally" that deliveries would not proceed without a price increase; world prices had climbed considerably during the four years. Also in 1973, "informal" word reached the Japanese that increased prices were desired for the wood chips. For the timber, the Japanese consumers finally signed parallel contracts for the final year of deliveries without explicitly repudiating the original agreement. In Japanese eyes, therefore, the effort by Soviet trading companies to expound the commercial reliability of the USSR is open to question. In future agreements Japanese will probably try to define escalation clauses.

2. Credit terms - In credit negotiations other questions than repayment period, down payment and interest rate arise, although on these alone the bargaining is normally stiff. In the recent negotiations on these four projects, Soviet negotiators have insisted on foreign financing through bank loans, in contrast to the supplier credits for the timber, wood chips and Vrangel port contracts. In these bank credits maximum flexibility is sought as to use -- the Soviet parties should be free to use the loans as a line of credit for selecting Japanese exports as and when desired; some portion should be available for financing consumer goods.

Japanese negotiators, supported by government agencies, say they are willing to consider bank loans, but they want the USSR to specify in advance for what materials or services, and on what schedule, the USSR intends to draw the credit. They also argue that consumer goods internationally are financed only on short terms related to consumption periods and that Japanese banks are not permitted to apply medium or long terms for such goods. In the timber and chip projects the USSR used the consumer goods as a means of internal financing, combined with an incentive to workers to come to work on these Siberian projects. Reportedly the goods were sold generally within the USSR, in addition to workers at the projects, at considerably marked up prices. This income helped to finance the project which otherwise lacked sufficient financing within the government plan.

The Soviet new preference for bank loans is consistent with its goal of keeping interest charges to a minimum. It recognizes that the bank loan portion will have to be negotiated from prevailing commercial rates, but it seeks maximum participation in the credit by foreign government financing at lower rates to keep the combined rate down. Bank loans put the decision on real interest charges more in

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Soviet hands than supplier credits permitted. While Soviet traders might have negotiated a low interest rate from a supplier, they had no way of knowing what additional interest charges might have been included in the supplier's internal calculations of price to the USSR. Soviet traders apparently accepted this practice of hidden interest in the past for the purpose of ostensibly low interest charges in public contracts. Now Soviet negotiators seek to bargain the best possible commercial rates and then to maximize participation of foreign government credit agencies, or to draw on foreign government credit lines, to keep the commercial portion as small as possible.

3. Supply and Purchase Assurances - Negotiating experience has shown that the Soviet traders also press for reciprocal assurances of purchase and delivery in any general agreements. The Soviet assurance, given the Soviet social system, is essentially a guarantee of the government that the project will be fulfilled and deliveries made as scheduled. However, the Japanese argue that their government is in no position to give such assurances for Japanese companies. A formula has emerged whereby a number of Japanese industries consuming the product (26 companies for the timber project) on their individual responsibility undertake long term purchase commitments and these are presented in a collective total to back up the project general agreement.

4. Inadequate Soviet Data - Japanese businessmen have consistently had difficulty in obtaining the specific information from the USSR which they felt was necessary to evaluate the feasibility of a project and to develop realistic, proposals. Requests for site visits, sampling of deposits, etc. were consistently rejected until 1972. Requested information was often too general and inadequately substantiated. The visits to Sakhalin and Tyumen by Japanese teams were rated a moderate success. While sufficient information was added to enable Japanese planners to decide affirmatively that resources were present which were worth developing, they felt that considerable information was still not provided which they requested as a basis for adequate project definition.

A general structure for economic agreements has emerged from the Japanese-Soviet experience to date. A "general agreement" is signed by the principal Japanese business negotiator and the Soviet trading company counterpart, and possibly others involved if the arrangement is complex. This document defines the overall project concept, prices, credit arrangements, delivery and purchase assurances and any other fundamental points. If bank loans now replace supplier credits it is expected that there will be a separate loan agreement. Accompanying these basic agreements is a government-to-government "umbrella" understanding. The governmental agreement in essence says that both governments will facilitate the "general agreement" implementation and that trade and payments

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in the "general agreement" will be carried out in accordance with the trade and payments arrangements then existing between the two countries.

VI. ISSUES IN US COMPANY DECISIONS TO PARTICIPATE IN SIBERIAN ENERGY PROJECTS

Certain common themes emerge from discussions with US businessmen and bankers about the factors which influence their possible participation in Siberian energy projects, although emphases vary. Key issues in their minds are: US Government attitude, international political situation, international market competition, commercial criteria of feasibility and profitability, credit financing, and US Government supporting role. Proceeding fully in line with US government attitudes was clearly a paramount criterion of those interviewed.

A. US Government Attitude

Interviews with US business and banking representatives were conducted in the spring of 1973 while the nation was expecting the President's message on energy policy. Those contacted universally planned to set their future investment priorities according to guidelines from the Presidential message -- how much effort to expend on domestic vs. foreign supply sources; what priority to give to projects in the USSR in their international programs. They were expecting fairly explicit guidance, either in the message itself or in informal consultations with Washington agencies about the basic policies which were decided in the context of completing the message.

Looking now at the message, it is probably more general than the business community could use as definitive guidance and they may be expected to seek supplemental information from federal agencies. There is a definite sense in the message of priority to developing domestic resources, especially for national security and balance of payments reasons. International cooperation was referred to mostly in the sense of handling emergency international shortages and some research and development. Attention was given also to achieving the lowest possible costs, and energy prices also are to reflect true costs. The message referred to the fact that higher costs on new, unregulated gas would be averaged in with lower prices for gas which is still regulated. It endorsed natural gas as the "premium fuel", because of its clean-burning quality.

To the business community these guidelines could suggest going slow on Siberian energy, in preference for steering such massive investments to developing domestic resources. Siberian gas projects have been carrying tentative prices of gas landed in the US port of $1.25-1.50/thousand cubic

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feet, three times the current domestic price for new gas and twice the price of Algerian LNG. If each project is to sell gas at its true costs consumers would look hard for alternatives to Siberian gas.

On the other hand, the message does observe that there is an interim period in which the nation faces potential shortages until new domestic sources can be developed for long term supply. If the length of this interim period is in the time frame of 1990 to 2000 (and many believe it could take that long to complete R&D on new energy forms and to construct new facilities), then Siberian LNG may be attractive. Use of this "premium" gas would reduce dependence on the only available alternative -- imported oil. Developers of Siberian gas say they can begin 20 years of deliveries by 1980. The Presidential message recommends that the Secretary of Interior be given new authority to impose a ceiling on the price of new natural gas, and he could give consideration to accepting a higher price on imported LNG, if it is averaged in with cheaper, albeit rising, costs of domestic gas.

US Government policies of detente with the USSR also encourage the business community to pursue the Siberian energy projects. The two US consortia which are discussing proposals with the USSR are being responsive to the Communique on commercial matters from the Moscow summit meetings in May 1972, which included "US-USSR participation in the development of resources and the manufacture and sale of raw materials and other products" in the areas for expanding mutually beneficial commercial relations. Consortia representatives may be expected to seek clarification from US agencies about the interface between US bilateral objectives with the USSR and the energy message.

B. International Political Situation

Future trends in the Soviet system and Soviet policies was the first international consideration of US businessmen. They seemed convinced that the USSR genuinely was trying at this time to reach agreements with non-communist companies to speed economic progress within the USSR by use of foreign capital, technology and trade. However, they were concerned that this cooperative policy could change abruptly under the centralized Soviet system, either because of an international political crisis or a sudden change in internal Soviet policies. Thus, they believed that any contracts should contain economic incentives to the USSR to abide by them, and there should be appropriate insurance and guarantees from the US government -- perhaps of a new character in government-to-government agreements. A minority believed that Soviet desire generally to sustain non-communist capital and technical flows to the USSR, would deter Soviet ill treatment of a non-communist partner in any major project.

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Most of those interviewed had had experience in business cooperation with Japanese businessmen and saw no difficulty in setting effective working relationships on major cooperative projects. Some had an uneasy concern that Japanese firms were receiving an increasingly "bad press" about their aggressive trade and investment expansion in Asia, to the point that charges of economic domination were emerging from some Asian countries.

The US companies would not want Japanese unpopularity to "rub-off" on them in a cooperative venture with a Japanese partner. To date the problem did not appear to apply to cooperation in the USSR or China, but rather in smaller Asian countries.

In terms of Siberia particularly, there was some concern that the Japanese-USSR impasse on the northern islands issue could be re-introduced at the last minute to block a project which a great deal of planning had brought to final signature. To avoid such a contingency the US companies might be wiser to undertake any Siberian projects bilaterally with the USSR and without Japan. The US firms recognize that Tanaka has removed the island issue as a condition for economic cooperation at this time, but the past record shows that the linkage has reappeared consistently.

US companies interested in Siberian projects are also concerned about Chinese-Soviet relations. They are aware that China has already indicated concern over the Tyumen oil pipeline to the east Siberian coast. They are concerned that China may go beyond its present comments (which have been about a necessary minimum) to intensify opposition to non-communist participation generally in Soviet development of Siberia, possibly in the form of denying such non-communist companies entry to the PRC market. On the other hand, the US companies realistically assess the Soviet market as being so much more developed than the Chinese that the real business potential will lie in the USSR rather than China for some time. Futhermore, if China does open to more commercial cooperation with non-communist countries, it is unlikely that the PRC will allow any one nation to dominate this cooperation, even though Japan may appear to have certain geographic advantages.

Therefore, US firms will be watching Chinese actions closely. They would prefer not to have pipelines exposed along the Chinese-Siberian border (gas or oil) if there is to be increasing hostility between China and the USSR. A minority view is that pipelines near the border could be a stabilizing factor. If it is the USSR which has been more aggressive on the border issue, the Soviet side would be less willing to inflame the Chinese if it had valuable pipelines in such vulnerable positions. Further, if at least one foreign country has a strong interest in the energy flowing through

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these pipelines (US and/or Japan), there may be less willingness by either China or the USSR to take actions threatening the lines.

C. International Market Competition

With energy demand accelerating in the US, Japan and other industrialized countries, US oil and gas companies are hard-pressed to obtain adequate supplies to service their customers in the US and overseas. They express some concern that the aggressive Japanese quest for new energy sources overseas will pre-empt US companies, or drive up prices through overly eager contracting, or both. (Interestingly, Japanese companies have been similarly concerned about US pre-emption, and source competition leading to price inflation). The US companies appear to be coming to the Japanese view, that it is more urgent to obtain the supply source than to be concerned about the profit return.

Logically, to avoid the adverse effects of excessive competition, both US and Japanese companies are talking about greater cooperation in exploring and developing new oil and gas fields. One US businessman close to zaikai leaders says that "the message" has gone out recently to Japanese industry to favor cooperation over competition, but action is just beginning to appear. The advantages of cooperation include the important incentive of spreading capital sources and risk. Some US businessmen see advantages to their export potential from cooperation with Japan on energy projects. Japan is already producing 48" and 56" pipe which is not on line in the US. However, the US is the world leader in the technology of LNG systems and engineering and construction of LNG facilities and tankers. Japan is moving to develop LNG tankers production. Before the US and Japan become export competitive in these energy areas, as they have been in other fields, businessmen in both countries see potential advantages from respective country specialization with exports sufficient for both countries.

D. Commercial Criteria Affecting Feasibility and Profitability

To illustrate commercial factors influencing US company decisions about proceeding with a Siberian energy project, it may be useful to use as an example the Yakutsk proposal. Key considerations are market demand, alternate sources, price, Soviet administrative and commercial practices, US company capabilities and possible partners (including potential Japanese collaborators), credit financing, and US Government supporting role.

1. Demand/Sources/Price - The US companies have no doubt that the demand for natural gas is increasing in the American market at a rate which would justify exploitation of Soviet

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resources in addition to other planned domestic and foreign sources. Even if new domestic sources are developed under the incentive of higher prices pursuant to the President's energy message, Federal Power Commission and National Petroleum Council studies estimate that such new development will just be sufficient to maintain a relatively stable domestic supply which would otherwise be steadily declining after 1975. The same studies project demand as increasing from 62 billion cubic feet/day in 1970, to 82 billion in 1975, and 94 billion by 1980. Domestic supply is assumed to remain at about 60 billion. By 1980 imports by pipeline from Canada are estimated at 4.5 billion and LNG imports from Algeria and Trinidad at 5.5 billion, leaving about 24 billion in unsatisfied demand (presumably to be made up by imported oil). Against relatively stable domestic supply, these studies project total demand rising further to 109 billion cubic feet/day by 1985 and 127 billion by 1990. US company proposals would have gas flowing to the US from Yakutsk in full volume by 1981. ("North Star" by 1980).

Alternative foreign LNG sources during the 1980-1990 time period include Alaska, Algeria, Australia, Indonesia, Venezuela, Trinidad, and possibly Iran. However, the total demand projection is so large that all of these sources appear to the US companies to be worth developing in addition to Siberia, especially since increasing demand in Japan and Western Europe will take some of this new production. However, there is some thought that coal gassification may emerge as a major alternative to some of this imported LNG during this time frame, if the problem of excessive ash can be overcome, given the extensive US coal supplies.

Closely linked to demand and alternative supply sources is the question of price. The US proposals for Yakutsk and "North Star" are estimating gas landed in the US at $1.25-$1.50 per thousand cubic feet. This compares with domestic gas which is selling at 26 cents, with prospects for increases to 35-45 cents in the near future. Algerian LNG is coming in at about 75 cents and none of the non-Siberian projects being planned appear yet to go over the $1.00 level. However, the developer/supplier community generally expects that prices will be rising to an extent after 1980 that the Siberian price will be competitive, especially if this gas is rolled in with cheaper gas to arrive at an average price to the consumer which the market will bear.

This price view of the developer/supplier, however, is contested somewhat by the consumer. For example, the large west coast consumer, Pacific Gas and Electric, and some bank economists are far from convinced that the Siberian prices being considered will be competitive. Coal gassification becomes competitive at the $1.25-$1.50 price. Futhermore, energy consumers will compare gas with oil prices, and in

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energy equivalents gas at $1.00 per thousand cubic feet amounts to $5.00 per barrel of oil; $1.25 equals $7.50; and $1.50 gas equals $9.00 oil. Some sources have confidently predicted $5.00 per barrel as a possible going oil price in 1980.

Consumers will be reluctant to consider much of a spread over the prevailing price for oil wherever the operations allow fuel to be interchangeable. The fact that much oil is more polluting than gas because of high sulphur content can be offset by new processes to lower the sulphur content, with cost estimates running from 50 cents to $1.00 per barrel. At the Siberian gas price synthetic gas from oil also becomes competitive. However, de-sulphurization of oil and gas from oil only add to national dependence on oil, and at this time there is considerable concern that the US may be headed toward excessive reliance on a few foreign sources for its future oil.

Finally, the question is raised whether the USSR would adhere to a fixed price, or might seek to escalate the price during the 20 year contract.

2. Soviet Administrative and Commercial Practices - In addition to the general concern discussed earlier about the possible reversibility of basic Soviet policies, US businessmen see Soviet business practices as a serious uncertainty in their calculations of project feasibility.

The USSR often seeks a general commitment to proceed before the detailed analysis has been completed which US firms require. US firms cannot accept the approach of one Soviet official, "Let's engage and then see where it leads us". The USSR has publicized its record of adhering to the letter of commercial agreements with non-communist parties, even if negotiations usually have been marked by hard bargaining. However, in recent cases (e.g. Japanese timber and wood chips) Soviet parties seem to want to reap the benefits of higher world prices despite contract terms of fixed prices. US companies making proposals to the USSR on Siberian projects may be seeking fixed prices, but they also need to consider what sort of escalation clauses might be negotiable in order to assure basic contract viability, given the likelihood that accelerating world energy demand is steadily pushing up prices. Futhermore, the USSR may find that its local capital and operating costs in practice exceed contract estimates, and it may seek to recoup these rather than absorb them in its overall plan.

From negotiations to date with Soviet counterparts, some US company representatives have reservations about the capability of the Soviet teams to implement a technically complicated operation on the scale of an $8-9 billion project

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like Yakutsk. They have met some highly qualified engineers and competent project planners. However, the competence seems to run somewhat thin, in that a few men seem to be called upon to do most of the complex work with the Western team in addition to being called away to other parts of the Soviet Union regularly on other duties. The Soviet side assures the US side that it is competent to handle pipeline laying from previous experience, but the US companies point out that the Yakutsk project will involve new types of pipe, pumping systems, valves, etc. with which the USSR is not familiar. US planners are also concerned that the USSR may underestimate difficulties of constructing pipelines and facilities for the new LNG system in permafrost conditions, despite previous Soviet experience with other tundra operations.

Also, there is the basic problem of reassuring the Western companies that the necessary reserves of gas are actually available in the magnitude and conditions which can be extracted to fulfill the project. The general assurances which they have received are insufficient on this fundamental point. Until estimated reserves are actually "proved", and the conditions for extraction tested, by drilling, no Western company is willing to proceed to a firm contract. They speak in terms of a general contract, which would have as a precondition to a definitive contract Soviet commitment to prove the actual reserves.

Given these uncertainties so far, the US companies are concerned that in the actual implementation of a firm contract there could be excessive delays which could seriously escalate costs, which in turn could undermine the project's economic feasibility. In addition to technical problems, they have seen evidence of bureaucratic delays from inability to fix Soviet responsibility and competitive views between Soviet ministries and trading organizations. In addition to higher equipment, construction and tanker costs through delays, the US parties wish to avoid higher costs from longer debt servicing.

Despite all of these reservations, the US consortia seem confident that, by being aware of the possible pitfalls, they can successfully implement a Yakutsk LNG plant. They note that the USSR is familiar with penalty clauses for slippage in contracts and the cost escalation problem from delays. If the project has sufficiently high political priority and support, they feel that the necessary means and manpower will be applied on the Soviet side, just as the Soviet space and military efforts have demonstrated. Problems of language, state trading company procedures, local law interpretation, etc. then become lesser difficulties.

It remains to be seen, however, whether the USSR will be able to mount more than one energy project of the scale of

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Yakutsk, "North Star" or Tyumen oil at any one time, given other demands on its economic resources. In fact one well-placed Soviet source mentioned that the internal infrastructure costs (e.g. for highways, power, worker villages etc.) to the USSR of some of these large scale energy projects could run seven times the estimate of foreign capital costs. (He would not elaborate this large estimate.) Thus, the go-ahead decision on any project rests ultimately with the USSR.

This Soviet control over the contracting process was pointedly illustrated by two reversals within one year of the Soviet position toward whether a Japanese or US consortium should take the lead in the Yakutsk project. In the summer of 1972 USSR representatives were still regarding it as a Japanese project, apparently carried over from talks in the Japanese-Soviet Joint Committee. In the fall of 1972 Soviet officials were encouraging US companies to take the lead, in the spirit of new commercial cooperation after the Moscow summit meeting. In April of 1973 the USSR formally proposed to Japan that its companies again take the lead.

Japanese and US companies see as one possible motive a Soviet belief that it might obtain better conditions for itself in the contract if it "played off" the two sides competitively. The companies already have some concern that the USSR may be extracting technical and financial information from their extensive proposals which can be used to the disadvantage of either Japanese or US companies in future negotiations. These suspicions have, as an important result, led the US and Japanese companies to seek even closer coordination with each other. Others see the Soviet motive more in terms of which country they believe is more likely to provide the better credit terms, and this seems to point to Japan at present.

3. US Company Capabilities and Partners - The companies in the two US consortia which are making project proposals on Yakutsk LNG see no difficulty in including this technically complex and large scale operation in their normal programs. They see this project (or the equally difficult "North Star") as unprecedented, but within the state of the art. They seem to regard the credit arrangements as more difficult than construction and operations.

Both consortia have extensive experience in oil and gas exploration and development and construction engineering experience unmatched in the world. One of the US engineering/construction companies has been actively involved in LNG processes since 1959 and has participated in 13 LNG projects in various global regions, more than any other company in the world. They generally believe that their managerial and engineering staffs could handle the Yakutsk (and/or "North

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Star") project without hindering other work around the world. They acknowledge a potential problem in obtaining adequate on-site supervisory personnel for the construction process, personnel from the US or other non-communist countries with the requisite technical skill and willingness to participate in the project under the hard conditions of nature and communication. They see a major void in their ability to assess the quality of Soviet general labor.

In the selection of Japanese partners they see no problem. Even before steps were taken within Japan to organize a single consortium for the Yakutsk project, the US consortia had held initial discussions with possible Japanese collaborators. Close cooperation between US and Japanese firms will be greatly eased by the recent designation of Hiroshi Anzai, Chairman of Tokyo Gas, to lead a single Japanese consortium for the Yakutsk project. This Japanese group will be in a position to handle all aspects involving Japanese firms, including the appropriate shares of participation in the project by individual Japanese companies -- a task which would be extremely complex for a non-Japanese party. Financial arrangements will probably involve, in addition to consortia talks, direct contacts between US and Japanese banks, using the familiar concept of a lead bank on each side.

E. Credit Financing

Among both business and government representatives interviewed in Japan the issue of credit financing was described as the most difficult problem in planning the Yakutsk or Tyumen projects. US companies and banks also saw financing as a major issue, with varying degrees of emphasis. For Japan the problem is magnified by the fact that the government is being asked to make a political decision to authorize loans by Japanese banks directly to Soviet parties for the first time. Previous credits to the USSR have been through Japanese suppliers. The action would also have the Japanese Export-Import Bank for the first time sign credits directly with Soviet parties rather than through Japanese suppliers. Other credit financing issues are similar for US and Japanese businessmen.

1. Impact on Capital Markets - There is mixed opinion in the business community of both countries about whether financing a project on the scale of Yakutsk will place difficult demands on capital markets at a time when other global energy projects are also increasing capital demands. Financing in the amount of $7 billion would be needed for Yakutsk from Western capital markets, of which about $5 billion would be in the form of credits to the USSR (plus another $700 million for the USSR if the Soviet Union decides to purchase one-half of the LNG tankers). Disbursements of total project

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financing (including Soviet credits) can be only roughly estimated at this stage of planning, but, assuming firm contracts by mid-1974, roughly one-fourth could be drawn in 1976 ($1.7 billion), one-half could peak during 1977-78 ($3.6 billion), and another one-fourth could come in 1979 ($1.7 billion).

It is far from clear at this time whether it would be feasible for both Yakutsk and "North Star" to proceed roughly simultaneously, even if the USSR decided it wanted to do so. In addition to internal USSR construction and finance limitations there could be real limitations in raising necessary capital in the Western markets. Although overall project cost estimates for "North Star" run a bit less than Yakutsk (about $7 billion compared to $8-9 billion), credits to the USSR could be the same (about $5 billion) in each project if the USSR owns one-half of the tankers in the "North Star" project as is being currently discussed. Credits for the USSR for "North Star" amount to about $3.7 billion exclusive of 10 tankers which require credit for $1.3 billion. (Credit amounts for each project could be reduced somewhat by larger Soviet down payments).

The question of the amount of credit available for the USSR at any one time appears to pose greater problems for US financial planners than the overall demand on Western capital markets for the Yakutsk or "North Star" project. However, a minority of those interviewed saw some potential disturbance to the capital market even from one of those projects if disbursements occurred roughly along the lines discussed above. Some stretch-out of disbursements would help (and might be feasible), but this minority thought that one of these projects alone would absorb an amount of credit in the market which could push up interest rates generally, not only on these and other energy projects.

There was general agreement that if both projects proceeded in overlapping years there would be major problems for the market to find sufficient capital for both. Certainly it would mean deferral of other energy projects, possibly denial of other major capital projects, and there would be upward pressure on interest rates. The impact of $3.5-$4 billion in annual disbursements for these two projects together might be illustrated by comparison with statistics for global capital expenditures for oil and natural gas as developed by The Chase Manhattan Bank. Total world-wide capital expenditures were $21.8 billion in 1971 and are projected at $565 billion during 1970-85 (average $37.6 billion/year). For the US alone capital expenditures were $7.25 billion in 1971 and are projected at $220 billion for 1970-85 (average $14.6 billion/year).

Most of the US bankers took a fairly confident view that the credit market would sort out which energy projects would

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proceed, or what priority, according to the readiness schedule and economic feasibility of proposals as received by the banks. If this meant deferring some projects, so be it. Also, they felt that these large Siberian projects in themselves would not dominate the interest rate situation, although the simultaneous implementation of the two projects could create upward pressure on rates. They generally believed that timing and phasing of credit proposals to the market would be extremely important.

All of the bankers viewed the credit requirements for these Siberian projects as coming from bank loans. If the institutional lenders could be tapped, then the problems of capital availability and interest rate pressure would be ameliorated. However, until the Johnson Act is repealed (as proposed in the President's recent trade bill), sale of bonds or other financial obligations of the USSR to US holders is forbidden. Institutional lenders normally do not participate in normal financing of export sales of particular goods and services, actions allowed under the Johnson Act by ruling of the Attorney General. Also, even if the US institutional lenders should participate in these export transactions, or if the Johnson Act is repealed, these lenders have certain limits on their participation in foreign financing. The Euro bond market is regarded as too "tender" (relatively small compared to the US) to be approached on these projects.

When asked about possible participation, a senior officer of one major insurance company said that his company would not readily participate in a bond issue or export credit for the USSR, and that the company would want to be sure the project itself was economically sound, rather than rely on the general credit worthiness of the USSR. The company would probably want a non-Soviet party to guarantee payment of interest servicing in the "stub" period (before project income began) and would want to spread the risk as widely as possible.

2. How Much Credit for the USSR? - The question of how much credit could be raised at any one time for the USSR from banking sources alone presents certain additional problems to US bankers. The Soviet Union might be seeking international credits for other projects at the same time, and it might wish to limit certain proposals to the Eurocurrency market while drawing on the US market primarily for projects involving US firms. The lead bank would have to phase the credit presentation according to other financings of energy projects underway. Terms, conditions and rates would have to be geared to the market at the time. The balance of payments situation would be a factor, as would Soviet performance on servicing other major credits which may have been issued previously.

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One leading bank spoke of being able to place in the commercial market up to $2.5 billion of Soviet bank credit for a Siberian LNG project. The US Export-Emport Bank might take directly a minimum of the other half ($2.5 billion) and possibly more. Under current operating procedures with the USSR Eximbank has not been guaranteeing US commercial bank credits to the USSR, since the banks receive the guarantee of Soviet state authorities. The US bank thought that a 15-year term would be marketable, possibly with principal repayments beginning only after a 4-5 year construction period. Low servicing costs might be sought on the credit package in the interest of demonstrating feasibility of the credit package as well as enhancing USSR acceptance.

Individual bank credit ceilings also could pose a problem, that is the overall credit limit allowed by the Comptroller of the Currency and not just the bank policy as to country ceilings. One bank survey showed that the total presently allowable ceilings of US commercial banks was between $4 and $5 billion, with the major banks having the predominant share. Even breaking down the $2.5 billion into smaller disbursements could pose ceiling problems.

Some US bankers point out that the ceiling issue could be evaded by the technical step of signing several credit agreements with different Soviet parties for components of the overall project, but they do not believe it changes the fact known to all that the agreements are really with one party -- the Soviet State. Japanese participation in the Yakutsk project reduces the US bank ceiling problem, since Japanese sources would provide $3.5-4 billion in credit, primarily for pipe. Credit demands on US banks could also be reduced for "North Star" if pipe were purchased from Japan or Germany. Indeed, the fact that the 48" and 56" pipe being considered for these projects is now produced only in these two countries probably will give them a price advantage if project components are purchased on competitive bidding.

Considering US banks alone, country ceilings for the USSR in individual bank policies could somewhat limit the takers of a syndicated Soviet credit. Generally, however, the banking community agrees that in the last 2-3 years there has been a remarkable, positive turn-around in US bankers' views toward the USSR. In addition to the demonstrated large USSR trade with substantial cash flows to reinforce mined reserves, the bankers have come to accept the commercial reliability and political durability of the USSR.

3. Special Problems: LNG Tankers, Consumer Credits, Balance of Payments - Three aspects of financing the Siberian LNG projects the bankers believe require special consideration: a) LNG tanker financing, b) project-related consumer credit, and c) balance of payments effects.

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The amount of the credits for LNG tankers would depend on what ownership share the USSR might choose to take in the tanker fleet. Algeria has no ownership in the LNG fleet bringing gas to the US, but the USSR is expected to want some share for national prestige and economic reasons. The earnings from tanker transportation are expected to be a significant cash flow item, and this flow might be related to credit servicing. On the other hand, the annual sales earnings by the USSR over the 20-25 year life of either project would be ample to service the debt without depending on tanker earnings. Further, even without taking an ownership position the USSR could negotiate some share of earnings from tanker operations in the contract. Tanker financing can also involve leasing arrangements, and US banks have been active in leasing. However, these future projects may not attract leasing interest because banks are reaching a total leasing income limit after which the tax incentive from depreciation benefits declines.

The Soviet pattern of seeking consumer credits in connection with a major development project has been seen in the Japanese experience, and reportedly USSR representatives have raised such credits with US firms in connection with Siberian gas projects. The US banks interviewed unanimously agreed that any credits for consumer goods would have to receive the standard short-term conditions that such goods receive in normal trade, i.e. less than one year and related to consumption period. They were sympathetic to the Soviet objective of trying to sell these goods in the USSR as a means for redistributing greater financial resources to a project than otherwise would be available from the national plan. However, the only help which they could foresee at this time would be to assist the USSR in obtaining credits for capital equipment imports designed for production of consumer goods in the USSR.

Discussions with company and bank representatives revealed a deep concern over the US balance of payments problem and an intent to structure the Siberian projects in ways which could help to improve the situation. It is difficult to construct a most likely balance of payments for any project, because of the many options for cash flow plans. Price f.o.b. from the USSR is not yet fixed. Credit repayment schedules are still very much in formation. Decisions remaining about Soviet participation in the tanker fleet will affect the amount of credit the USSR needs and how much cash it may receive from tanker earnings. Large diameter pipe (48"-56"), a major cost item, is now only available in Germany and Japan although US firms could tool up to produce it. Suffice it to say that the companies are carefully projecting US outflows from annual gas purchases against total US exports to the USSR and debt servicing payments. In fact, serious consideration is being given to the

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possibility of obtaining Soviet commitments to use all, or a substantial portion, of their net earnings over the life of the project for additional exports from the US which are unrelated to the gas project.

F. US Government Supporting Role

US consortia and banks which are developing project proposals for Yakutsk and "North Star" are dependent upon US Government decisions in two key areas for support which are key to project feasibility: a) Export-Import Bank financing, and b) Federal Power Commission decisions on marketing price for the imported natural gas in the US. They also see other governmental decisions of significant, but less crucial impact: a) Environmental Protection Agency decisions on environmental impact studies concerning major port, regassification and storage facilities in the US, and b) possible repeal of the Johnson Act. Finally, they see new issues emerging from a large energy project with the USSR which suggest that certain points contained in the company contracts with USSR agencies are of such major importance to the US economy or foreign policy (e.g. price escalation supply interruption or balance of payments), that these points might be reinforced in a government-to-government "umbrella" agreement for that project.

1. Export-Import Bank Financing - The US consortia and banks believe that Eximbank has successfully established the necessary working arrangements with Soviet authorities within which credit financing can be arranged for the portion of goods and services in these projects which will come from the US. However, given the large credit amounts involved, the US parties think it may be necessary for Eximbank to obtain from the Congress an increase in its present lending authority of $20 billion and its authority of $10 billion for guarantees and insurance which may be issued on a fractional reserve basis. Of course, US companies recognize that the need for any increase will depend upon Eximbank projections of its exposure globally in light of future developments. The companies are generally planning for Eximbank to lend directly to the USSR one-half of the US credit, with the other half arranged between the US commercial banks and Soviet agencies with the guarantee of USSR state authorities. Such arrangements would call for about $2.5 billion in Eximcredits for each of the projects, Yakutsk and "North Star" (although this might be reduced somewhat depending on the size of Soviet downpayments.)

2. Price and the Federal Power Commission - Decision by the Federal Power Commission concerning the price at which the imported natural gas may be marketed in the US will determine the entire rate of return on the total investment. US company planning to date has been based on $1.25-1.50

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as the landed price at US ports, twice the price of imported Algerian LNG and three times the currently proposed price for domestic new gas. The President's energy message proposed legislation deregulating new gas to allow market negotiations to determine price increases sufficient to encourage new exploration and development. If imported LNG is treated the same as domestic new gas by the new legislation, the market will determine the feasibility of LNG supply from Siberia. However, the President also proposed that the Secretary of Interior receive authority to set the ceiling on prices, and it is possible that the FPC will retain authority over imported gas.

Thus, the US consortia must resolve the question of how price will be determined before they can consider firm negotiations with the USSR. If the President's proposals are delayed in legislation these Siberian projects face delay also. Consortia planners and their bankers seem confident at this time that, given the demand for natural gas, considerable price rises are inevitable under any pricing system to the point that LNG at their proposed landed prices will be competitive - and particularly if averaged in with other sources of cheaper gas. (See above discussion in Section VI, "US Government Attitude" and "Commercial Criteria -- Demand/Sources/Price").

During discussions with US firms and banks their representatives expressed growing concern over the unpredictable delays in energy projects from environmental issues. They accepted the social importance of environmental control and the procedure of environmental impact studies requiring approval by the Environmental Protection Agency. Their concern was not with EPA activity, but with the public conservationist groups who intervened unpredictably with law suits and Congressional pressure beyond what industry believes is a reasonable point of balance. Some industry planners feared the need for the country to suffer major energy shortages before the balance in public views would swing toward acceptance of more realistic environmental risks in the interest of supplying the energy necessary for economic and social health. They queried whether federal agencies could do more through public education, and action to expedite specific cases of crucial supply needs. They noted public unawareness of the long lead times required to construct major energy facilities. They suggested that the public be made aware of industry views that LNG systems are among the safest of any energy process.

Johnson Act repeal was raised by bank representatives in discussions before this proposal was contained in the President's new trade bill. Although they believed that credit arrangements could be designed solely through bank credits which followed normal market terms and conditions, they foresaw possible situations in which Johnson Act

restrictions might apply. USSR negotiators traditionally press for the best possible credit terms, better than may be normal market terms at the time -- partly with the goal of setting precedents for future terms. If negotiations on a Siberian project should arrive at a stage where everything was agreed except the credit terms on which the USSR was adamant for better-than-market terms, the consortia and their banks would be sorely pressed to compromise. However, they recognize that the Johnson Act carries criminal penalties and no bank wants to be the test case of whether its credit terms went beyond the Attorney General ruling which allows credits for export sales of particular goods and services, provided that the terms of such transactions are based upon bona fide business considerations. Terms softer than normal market terms and rates might not be bona fide, and thus subject to legal challenge.

Before the repeal proposal, the banking community thought that it might be possible to seek another Attorney General ruling if the crucial situation arose, recognizing US government policy to encourage trade with the USSR. This route might be considered again if the repeal is rejected in the trade bill, or is delayed beyond the time when Soviet negotiations may need such clarification.

3. Government-to-Government "Umbrella Agreement" - As US industry and banks look at the massive Siberian projects they have considered whether the US government might play a reinforcing role to the contracts which they negotiate. Although such governmental role would naturally reduce their risk, they genuinely raise it in the national interest as well. They see it in the government's interest that such large projects do not collapse with adverse effects on bilateral political relations and on the US economy using the gas.

One area of particular sensitivity is price. The consortia would like to negotiate a fixed price f.o.b. USSR for the 20-25 year life of the contract. Realistically they recognize that this may not be possible, noting probable rises in world prices over the coming years. They want to avoid the Japanese experience of having the USSR force price increases from fixed-price agreements by withholding deliveries. Recent experience with OPEC negotiations raises further concerns. These possibilities argue for some escalation formula in the contract. There is obvious governmental interest in the economic impact of any price increases for this amount of energy supply, especially if it is imported. If the government is involved in price approval (e.g. through FPC or Secretary of Interior), then it will want to have its voice in any change. Finally, the government would want to avoid supply interruption over a price dispute.

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The possibility of supply interruption evokes a quick emotional concern in the general public, especially in terms of supply from the USSR. Some answer that there need be no concern of dependence on the USSR for 2-3 billion cubic feet/day of natural gas when the total US consumption for 1980 is projected at 69 billion, and for 1985 at 72 billion (demand will be considerably higher than supplies available for consumption). Three billion cubic feet/day would be only 4.3% of total consumption in 1980 and only 4% in 1985, on this basis. (Data is from Federal Power Commission and National Petroleum Council studies). These same sources project gas imports for 1980 at 10 billion cubic feet/day and 1985 at 12 billion cubic feet/day, excluding Siberian gas. Adding Soviet imports of 3 billion cubic feet/day would make Soviet gas 23% of 1980 imports and 20% of 1985 imports.

A much more serious situation for the US economy from interruption emerges from a look at regional consumption as opposed to overall national figures. The "North Star" project plans to deliver about 2 billion cubic feet/day beginning in 1979 to the US east coast, Petroleum Administration for Defense (PAD) District I. Although District I is projected to require (higher than consumption) about 16.2 billion cubic feet/day in 1980 and 19.5 in 1985, the following requirements for subdivisions in the district show that focusing Soviet delivery in any one subdivision could present serious supply problems if Soviet supply were interrupted:

	New England	Middle Atlantic	South Atlantic	Total
1980	1.2	7.9	7.1	16.2
1985	1.5	9.1	9.0	19.5

Requirements in the technical category of "interruptible supply" are a relatively small portion of these projected demands.

The one billion cubic feet/day planned for delivery to the west coast, PAD V, under the Yakutsk project beginning in 1980 should have less impact on that district's total requirements of 11.8 billion cubic feet/day in 1980 and 13.6 in 1985 -- unless, of course, the one billion deliveries should be concentrated in one smaller subdivision.

Balance of payments effects from projects of this scale might also be sufficiently sensitive to warrant government-to-government understanding. Potential US exports range from about $2 billion for Yakutsk to $5 billion for "North Star", and these involve substantial supporting credit transactions. US purchases over the 20-25 year periods will provide the USSR with substantial net foreign exchange income, which the consortia have estimated between $5 and $10 billion for a single project, depending on how the tanker ownership

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and earnings are decided among other variables. US company negotiators believe there is a real possibility that the USSR might commit itself to expend these net earnings only in the US. It might be desirable, or necessary, to reinforce such a commitment in governmental understandings, particularly if US agencies wanted to have any influence over how these funds were spent in the US -- say for exports of goods and services or for direct or portfolio investment.

These three principal areas of sensitivity -- price escalation, supply interruption and balance of payments -- have led the US business community to consider discussing with US agencies the possibility of an "umbrella" agreement between the US and Soviet governments to guide or reinforce whatever provisions may be negotiated on these points in the company contracts and bank credit arrangements. Such agreements might be similar to these which the Japanese and Soviet governments have signed in connection with each Japanese development project in Siberia. In these large and sensitive energy projects the business community believes it would be unwise to turn over difficulties to third party arbitration as is encouraged in the US-Soviet Trade Agreement of October 18, 1972. The potential problem issues appear to US businessmen to have such significant economic and foreign policy implications that, in event of major contract difficulties, some form of government communication would be necessary. Although governmental contacts are feasible at any time, a governmental agreement at the outset would provide a clearer basis for consultation in the event of difficulty later.

VII. CONCLUSIONS: US GOVERNMENT APPROACH

The goal of this study was to suggest directions for action which may help to define an overall Government approach to certain international energy questions. Research and interviews highlight three areas for tentative conclusions: a) energy, foreign policy and national security, b) economic imperatives of energy cooperation with Japan, and c) problems for further US Government analysis.

A. Energy, Foreign Policy and National Security

Proposals for developing major gas supplies for the US in Siberia raise important questions about their meaning for US relations with Japan and China, in addition to the USSR. Research suggests that US policy should give at least as much weight to how these projects affect the accelerating quest by the Japanese and US economies for global energy resources as to the influence on US-USSR

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bilateral relations. Japan's critical dependence upon energy imports can only increase in the future, and Japanese government and industry are currently moving on an urgent program to secure the foreign resources which can satisfy the rapidly rising demand.

Japanese energy policy is a major influence on its overall foreign policy. Energy needs are a major motivation for immediate detente and commercial cooperation with the USSR, and the parallel effort gradually to expand commercial cooperation with China over a longer term. As Japan proceeds on an urgent national basis to secure energy abroad, this course could contribute to a more nationalistic economic policy generally. Development of a major energy project in a foreign country becomes tied to Japanese exports and Japanese financing, setting broader trading patterns between the two countries at the same time.

It is in the US interest to see that Japanese policies toward Moscow and Peking run on parallel tracks with our own. The US is seeking an economic world environment based on international cooperation in trade and monetary affairs, and would be concerned about energy resource competition running in a contrary direction. Thus, it appears in the US interest to take initiatives with Japan to build a coordinated policy approach on energy resources abroad, rather than to allow incipient tendencies toward competitive nationalism to expand. Such coordination could become a major plank in the new structure which the President is seeking for overall security and economic relations between the US, Japan and Western Europe.

The US goal for major expansion of trade with the USSR, which in turn could improve and stabilize political relations, would be advanced by a viable Yakutsk or "North Star" project. A viable project is one in which the economic advantages are sufficiently mutual that the contract can stand on its own merits of feasibility and profitability. A politically directed arrangement risks a subsequent political reversal. The two projects currently proposed appear to have sufficient mutual economic advantage to lead to firm contracts, assuming that certain key issues on credits and price are resolved. The US obtains major supplies of urgently needed natural gas during a period when domestic gas sources will be under development; it secures $2-$5 billion in exports of equipment for the projects and possible related exports of $5-10 billion if Soviet earnings are linked to future US procurement. The USSR obtains credits and technology for development in their new priority area of Siberia; large future foreign exchange inflows; and a boost to lagging domestic gas development programs.

On balance, the economic needs for the transactions appear greater for the USSR. However, in recent conversations in

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Moscow. Soviet officials all made the point that they were prepared to develop their gas and oil resources by themselves if foreign proposals were not satisfactory. While Soviet sources say this might mean taking 10 more years, US and Japanese businessmen believe it would be more like 20. Nevertheless, it is doubtful that loss of economic benefits even from one of these major projects would be sufficient in itself to prevent a political/military confrontation with the US (or the West generally) over what the USSR might regard as a major security issue. The possibility of deterring foreign capital and technology inflows might inhibit the USSR from a generally abrasive and expansionist stance in international affairs, but only short of what it regards as a major security issue. Thus, the US should see to it that the gas being supplied from the USSR is not concentrated in any US consuming region to the extent that interruption would cause economic difficulty. The US should be prepared to engage in such projects, but with safeguards.

From Japan the USSR obtains the same contribution to its economic development of Siberia. In addition, Japanese involvement in a major way in obtaining essential energy from Siberia can serve political purposes for the USSR. Major interests of a third party in the region might help to deter China from hostile border confrontations. Japanese interests in Siberian energy could assure a relationship with Japan which would deter close liaison between Tokyo and Peking at Moscow's expense.

Japan has been paying very close attention to statements by PRC representatives about the Tyumen oil and Yakutsk gas projects in Siberia. Although the Chinese have mentioned particular concerns over the oil project (with its potential military use in eastern Siberia), they have disapproved generally of developing Siberian infrastructure, and especially with capitalist assistance. Japanese officials regard the Chinese comments to date as what might be expected, but not sufficiently negative to deter them from proceeding with oil and gas projects. Time will tell whether the PRC will intensify opposition to a point where it may seek to veto Japanese projects in Siberia, or whether it will merely be sufficiently vocal to cause Japan in effect to "clear" proposals for Peking's reaction before moving seriously ahead.

China also apparently wants to build a relationship with Japan which avoids a Moscow-Tokyo liaison at the expense of Peking, a fact which may restrain PRC invective. China is implying that Japan may have a potentially substantial market in China, and has even indicated a readiness to sell relatively small amounts of oil to Japan. This could imply a later willingness to move to more significant development of its offshore oil potential with Japanese capital and technology.

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The US also has an interest in the potential Chinese market and offshore oil, and logically the PRC would want to balance Japanese activity in its economy with participation by the US and others with ample capital and technology. For the present, US interests are served by the triangular balance which is emerging in Japanese-USSR-PRC relations, so long as the US has its own lines of communication open to all three parties.

B. Economic Imperatives For Energy Cooperation With Japan

In the course of this study it has emerged that US economic interests in greater energy cooperation with Japan go considerably beyond the areas of dealing with international supply emergencies and research and development. The US and Japanese economies share an accelerating demand for energy. Respective national efforts to satisfy demand have common themes: diversity of source (with the US having greater prospect for reducing foreign imports over the longer run), stability of supply, environmental standards, cost saving, and international-cooperation where possible, as a matter of general principle, to achieve the other goals.

The need now is for both countries to move from espousing cooperation, as a general principle, to concrete actions. The economic benefits are compelling. By avoiding competition for foreign supply sources, prices for both countries will be less. Cooperation would also permit specialization in technology of new energy resources, and LNG facilities, pipe, tankers and other equipment which will avoid national duplication and enhance sharing of export markets. Drawing on Japanese and US capital markets will facilitate capital mobilization and risk sharing for financing the very costly new energy projects.

Japanese government and industry leaders appear to be at a key turning point in their approach toward meeting urgent energy needs. They have a preference for international cooperation, particularly with the US, but they will not sustain this posture if the US does not reciprocate. Japanese leaders recognize that they have not yet translated into action by Japanese companies an emphasis on cooperation over nationalism, but they argue that this will only be possible if they can point to specific beneficial actions which will result, and not just further international "consultations". The large Mitsubishi enterprise has just recently organized a new energy committee which will draw together for the first time all of its component industries -- including research, exploration, refining, construction, engineering, marketing, finance and shipping -- to devise an overall energy policy for the enterprise.

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It is urgent for the US to influence the directions of these Japanese activities in the immediate future. Key practical cases are present in the Yakutsk gas and Tyumen oil projects, in which the Japanese are seeking participation by US companies. US companies and banks are ready to cooperate, and will be coming with increasing frequency to US agencies for guidance.

C. Problems for Further US Government Analysis

US companies and banks have been waiting for the President's energy message for guidance to their own priorities for new energy projects -- what types of energy, national vs. foreign sources, and price policies being among their main questions. On these and other issues the business community will be seeking more specific clarification of the basic policy decisions which underlie the message. Some of their questions may require further US government analysis.

1. Energy Policy - For the Siberian projects, the cosortia will be asking: Is gas from Siberia acceptable within the message framework of short term imports and greater long term reliance on domestic self-sufficiency? Does gas from Siberia have any greater political priority, in the context of improving US-USSR relations, than LNG imported from some other geographic region? How will imported LNG prices be determined -- by the market; the FPC; the Secretary of the Interior -- and how soon will legislation clarify this key point? What project costs and price levels will be acceptable to the governmental economic managers seeking most efficient operation of the national economy; will imported gas remain acceptable at a price roughly equal to importing an equivalent energy value of oil, or will gas be acceptable at a higher import price because it is clean-burning and can be averaged in with lower-priced gas? Will financing for the Siberian projects place such large demands on the credit markets that financing for development of domestic gas would be made more difficult, and which should have priority?

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Japan will be seeking similar clarifications to guide their collaboration with potential US partners in the Yakutsk project. Also, Japanese wonder if by international cooperation the US means fully free investment in energy resources throughout the world, including Japanese investment in oil, coal, gas or nuclear fuel facilities in the US?

2. International Politics - The international politics of the Yakutsk project are still developing, so that US agencies will want to maintain continuing analysis of this situation and to provide timely guidance to US businessmen. The US Government will want to keep abreast of Japanese government intentions regarding linkage of the northern islands issue to conclusion of a Yakutsk contract with the USSR, in view of the potential frustration of the project by this action and/or involvement of the US in this bilateral USSR-Japanese issue. Should the US Government become involved in the Soviet apparent effort to play-off US and Japanese firms concerning leadership of in the Yakutsk project, in view of the potential political impact from misunderstandings on US relations with Japan and the USSR?

What are the implicatons of future PRC statements or actions concerning the Tyumen oil and Yakutsk gas projects? This question stimulates a further question of whether US agencies should take a position favoring "North Star" over Yakutsk, primarily to avoid more complicated negotiating problems and the entanglements of US-Japanese-Soviet-Chinese relations; or should these projects be allowed to sort themselves out on economic grounds?

It will be difficult to avoid US Government involvement in the issues of Siberian gas negotiations, if US companies are free to proceed on their own choice. Also, a case can be made that the US should have a real interest in seeing Yakutsk proceed because the USSR might be less willing to interrupt supply if both the US and Japan were involved than if only the US were involved as in "North Star"; it would be a major precedent-setting example for concrete cooperation between Japan and the US in international energy supply; it would make less demand on US capital markets and spread the risk by tapping the Japanese credit sources.

In the last analysis the USSR has the real choice concerning which international energy projects will proceed on its territory and on what schedule. Given its similar potential to interrupt supply, US distribution of Siberian gas should avoid concentration in a region to the extent that a cut-off could do serious economic damage. What steps would be needed to assure that alternative supplies could be routed promptly to the area?

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3. Balance of Payments - In the balance of payments area further analysis appears necessary concerning the competitive position of US companies in exports of engineering, construction and equipment in the energy field. The US appears to have the lead in engineering and construction of oil exploration, refineries and pipelines and in LNG facilities and pipelines. The US also currently appears to have the edge in the manufacture of equipment in these areas. However, the technology for all of them is readily available to other countries, and Japan particularly is studying in which of these fields it can expand its exports. LNG tankers are a striking case. The US is ahead of Japan in planning yard capacity for extensive construction of LNG tankers, although France has the most construction experience to date. However, Japanese ship constructors are aggressively making bids throughout the world, and at prices which may corner a large share of the market.

US agencies might study further: What steps are needed to permit construction and financing of US LNG tankers on competitive terms? Should this be a logical area for US-Japanese coordination in the context of a broad review of possible fields of respective specialization in energy equipment and systems? In what particular international projects could cooperation between US and Japanese firms be encouraged with a view to sharing export markets for their respective specializations? On major foreign projects (like "North Star" and Yakutsk) should the US consider some form of "national project" designation as is used in Japan to organize a consortium of domestic firms and to facilitate mobilization of capital? In the interests of national energy need and export promotion would it be necessary to modify existing anti-trust and competitive banking laws to form such a consortium which would be in effect a "chosen instrument" removed from domestic competition?

4. Credit Financing - Now that US banks and consortia are just beginning their credit negotiations with the USSR, financial issues are likely to be put to US agencies in the near future for guidance. If it appears necessary to consider a bond issue or bank credits which marginally stretch normal commercial credit terms and conditions, the banks will want to know how soon repeal of the Johnson Act will proceed in the context of the new trade bill. If repeal seems likely to be rejected or seriously delayed, the banks may request some appropriate ruling by the Attorney General. US economic managers will need to maintain a watch on the impact of large scale energy projects in Siberia and around the world on US capital markets. US agencies will want to consider how to tap Japanese credit sources for joint US-Japanese projects, including Japanese financing of US exports, as allowed but not yet widely practiced under Japanese government procedures. Eximbank may need to increase its lending authorities under the pressure of credit needs for Siberian and other energy projects.

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5. Government-to-Government Agreements - In consultations for this study, the US business community raised the possible value of having a government-to-government "umbrella" agreement between the US and the USSR to reinforce the basic business contract for a major energy project, such as Yakutsk or "North Star". US agencies will need to study further the potential merits of such an agreement for such government interests as: influencing a price for the gas in the national economic interest; contribution to stable adjustment of any price escalations during the contract; special arbitration/mediation provisions; deterring supply interruption; fixing balance of payments conditions; establishing conditions for export procurement or investment with Soviet earnings which may be commited for retention in the US under the contracts.

6. US Government Organization For Energy Policy - The complexity and sensitivity of the large Siberian energy projects raises the additional question of how the US Government is organized to monitor effectively the wide-ranging political, security, economic and environmental issues which are involved. The business community expressed considerable confusion as to whom they should go on these matters in view of the diverse US agencies with authority in different aspects of the projects. The President's proposals in the energy message are a step of clarification. The test will be in practice; whether the US government can keep up to date with developments, and in sufficient detail, so that it can respond with timely decisions, guidance, and actions in these overlapping areas of economic, foreign and security policy.

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Table 1

Japanese Primary Energy Supply By Type

(Percent)

	1970	1975	1985
Petroleum	70.6	73.2	70.0
% imported	(99.6)	(99.8)	(99.9)
Coal	21.2	18.8	17.4
% imported	(60)	(72)	(87)
Natural gas[1]	1.3	1.6	2.0[2]
% imported	(32.7)	(61.0)	(56.6)
Hydroelectric power	6.3	4.5	2.5
Nuclear power	0.4	2.2	9.0
Total energy[3]	99.8	100.3	100.9
% imported	(83.5)	(87.4)	(85)

[1] Includes coke oven gas, blast furnace gas, town gas, LNG.

[2] Expected to increase significantly from major increases planned in LNG imports.

[3] Does not add due to rounding.

Sources

1. Interim Report by the Petroleum Sub-Committee of the Advisory Committee for Energy, MITI Information Service, Tokyo, December 15, 1971

2. Interviews with officials of Ministry of International Trade and Industry (MITI); Director, Third Overseas Market Division; Director, Oil Development Division, Mining Bureau; Tokyo, April 1973

3. Interview and material from Senior Managing Director, Sanwa Bank Ltd., Tokyo, April 1973

4. William W. Clarke, "Japanese Energy Outlook 1970-1985", Study for the Senior Seminar, Foreign Service Institute, Department of State, Washington, May 1972

Table 2

Japanese Petroleum Imports

	CY 1960	1970	1975	1980	1985 Low	1985 High
Kiloliters, million	37.4	235.0	343.0	620.0	700.0	921.0
Barrels, million	235.2	1,478.2	2,157.5	3,899.8	4,403.0	5,793.1
Barrels/day, thousand	644.0	4,049.0	5,911.0	10,685.0	12,063.0	15,871.0

Sources

1. The Summary Report, Trade of Japan, compiled by Ministry of Finance, Published by Japan Tariff Association, Tokyo, December 1972

2. Balance of Payments Monthly, Foreign Department, The Bank of Japan, Tokyo, January 1973

3. Economic Statistics Annual, 1971, Statistics Department, The Bank of Japan, Tokyo, March 1972

4. Interview and Material from Senior Managing Director, Sanwa Bank Ltd., Tokyo, April 1973

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Table 3

Japanese Natural Gas Imports (LNG): Official Estimates

	JFY (April-March) 1970	JFY 1975	JFY 1985
BTU, trillion	52	179	548
Cubic feet, billion	52	179	548
Cubic feet/day, million	142	490	1,500
Tons/year, million	1	3.5	11

Sources

1. Interview with Director Oil Development Division, Mining Bureau, MITI, Tokyo, 1973

2. William W. Clarke, "Japanese Energy Outlook 1970-85", Study for the Senior Seminar, Foreign Service Institute, Department of State, Washington, May 1972

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Table 4

LNG Projects to Supply Japan: Industry Plans

Date Available	Source	Million tons/year	Million cubic feet/day
1969	Alaska	1	137
1971	Brunei	5	685
1976	Abu Dhabi	2	274
1980	Sarawak	6	822
After 1980	N. Sumatra	4 (of 8 total)	548
After 1980	Australia	5 (of 7 total)	685
After 1980	Siberia (Yakutsk)	5-7	685-959
	Total	28-30	3,836-4,110

Sources

1. Interview with representative Mitsubishi Corportation, Tokyo, April, 1973

2. Interview with Resident Manager, Bechtel International Corporation, Tokyo, April 1973

3. Interview and data from Senior Managing Director, Sanwa Bank Ltd., Tokyo, April 1973

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Table 5

Japanese Mineral Fuels Imports:
Balance of Payments Effects

($ millions)

CY	(1) Mineral Fuels	(2) Total Imports	(1) as % (2)	(3) Total Exports	(1) as %% (3)	(4) Total Trade	(1) as % (4)
1963	1,211	6,736	17.9	5,452	22.2	12,188	9.9
1965	1,626	8,169	19.9	8,452	19.2	16,621	9.8
1970	3,905	18,881	20.7	19,318	20.2	38,199	10.2
1972	5,715	23,470	24.3	28,591	20.0	52,061	10.9

Sources

1. Monthly Statistics of Japan, Bureau of Statistics, Office of the Prime Minister, Tokyo, February 1973
2. The Summary Report, Trade of Japan, compiled by Ministry of Finance, Published by Japan Tariff Association, Tokyo, December 1972
3. Balance of Payments Monthly, Foreign Department, The Bank of Japan, Tokyo, January 1973
4. Economic Statistics Annual, 1971, Statistics Department, The Bank of Japan, Tokyo, March 1972

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APPENDIX

Companies, Banks and Government Offices Interviewed in the US, Japan and the USSR

UNITED STATES

Research Institutes

The Brookings Institution, Washington, D. C.

Universities

Professor James H. Billington, Princeton University
Professor Gerald L. Curtis, Columbia University
Professor Hugh Patrick, Yale University

Companies

Bechtel Corporation, San Francisco, Calif.
Bechtel Overseas Corporation, Washington, D. C.
Fireman's Fund Insurance Company, San Francisco, Calif.
Marcona Coarporation, San Francisco, Calif.
Occidental Petroleum Corporation, LaVerne, Calif.
Occidental International, Washington, D. C.
Pacific Gas and Electric Co., San Francisco, Calif.
Tennessee Gas Transmission, Houston, Texas
Texas Eastern LNG, Inc., Houston Texas

Banks

Bank of America, San Francisco, Calif.
Chase Manhattan Bank, N.A., New York City
First National City Bank, New York City
Morgan Guaranty Trust Company, New York City

US Government

Central Intelligence Agency
Council on International Economic Policy
Department of Commerce, Bureau of East-West Trade
Department of Interior, Office of Oil and Gas
Department of State, Offices of
    East-West Trade, EB/ITP/EWT
    Fuels and Energy, EB/ORF/FSE
    Investment Affairs, EB/IFD/OIA
    Japan Country Desk, EA/J
    Planning and Coordination Staff, S/PC
    USSR Country Desk, EUR/SOV
Department of Treasury, Offices of International Affairs,
    National Security Affairs
Export-Import Bank
National Security Council
Overseas Private Investment Corporation

JAPAN

American Embassy, Tokyo

American Bank Branches

Bank of America
First National City Bank
Morgan Guaranty Trust Company

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American Company Representative Offices

Bechtel Corporation
Gulf Oil Company - Asia
Mobil Oil Company - Japan

Japanese Banks

Bank of Tokyo
The Industrial Bank of Japan
The Sanwa Bank, Ltd.

Japanese Companies

Federation of Economic Organizations (Keidanren)
Japan Sea Trading Co., Ltd.
Komatsu, Ltd.
Mitsubishi Corporation
Mitsui & Co., Ltd.
Nippon Steel Corporation
Overseas Petroleum Corporation
Tokyo Gas Co., Ltd.
Y V Company, Ltd.

Research Institutes

Nomura Research Institute of Technology and Economics

Government of Japan

Export-Import Bank of Japan
Japan Petroleum Development Corporation
Ministry of Finance,
    Deputy Director-General
    International Finance Bureau
Ministry of Foreign Affairs,
    East European Affairs Division
    International Resources Division
    Research and Planning Bureau
Ministry of International Trade and Industry,
    Third Overseas Market Division
    Oil Development Division, Mining Bureau

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USSR

American Embassy

American Bank and Company Representatives

The Chase Manhattan Bank, N.A.
Occidental Petroleum Corporation

Japanese Embassy

Research Institutes

Institute of US Studies, Academy of Sciences of the USSR

Government of the USSR

Ministry of Foreign Affairs, USA Section
Ministry of Foreign Trade, Western Hemisphere Division
Gosplan, Foreign Trade Department

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"Japan is Unyielding on Islands", March 19, 1973, p. A-1
"Japan Lets World Know It Will Use New Power", November 5, 1972, p. F-1
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"Japanese Energy Outlook 1970-1985", William W. Clarke, Senior Seminar, Department of State, Washington, D. C. May, 1972

"National Gas Supply and Demand 1971-1990", Staff Report No. 2, Bureau of Natural Gas, Federal Power Commission, Washington, D. C., February 1972

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