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DCI

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The Director of Central Intelligence

Washington, D.C. 20505

82-10111/1

memo

18 October 1982

Dear Bud,

A few weeks ago you gave me an NSC critique on analysis of the Siberian to Europe pipeline. This detailed response arrived on my desk. You may find it of some value.

Yours,

Bill

William J. Casey

Attachment

The Honorable Robert McFarlane
Deputy Assistant to the President
for National Security Affairs
The White House
Washington, D.C. 20500

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7 October 1982

MEMORANDUM FOR THE RECORD

SUBJECT: Comments on NSC Critique of "Outlook for the Siberia-to-Western Europe Natural Gas Pipeline," DDI SOV 82-10120/EUR82-10078, August 1982

Background

In late August, the Senior Indepartmental Group International Economic Policy (SIG-IEP) was scheduled to review the status of the Siberia-to-Western Europe gas pipeline in the wake of expanded US sanctions. CIA's Office of Soviet Analysis and Office of European Analysis prepared a briefing paper for an IG meeting leading up to the SIG-IEP meeting. The briefing paper was then published as an intelligence assessment. The purpose of the briefing paper and the assessment was to set out as clearly as possible our judgments regarding the impact of US sanctions on the ability of the USSR to deliver gas to Western Europe during the 1980s. We wanted to (1) present our analysis of likely West European reaction to the expanded US embargo and (2) review our analysis of the options open to the USSR in completing the pipeline and meeting its gas delivery commitments. We believed that our analysis, which had been developed over several months, needed to be brought into focus. For several weeks we had been responding piecemeal to State, NSC, and Treasury requests for information.

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The National Security Council Staff disagreed strongly with our assessment. In a critique, they maintained that the CIA assessment greatly overstated the ability of the USSR to overcome the US sanctions and failed to put the export pipeline in proper perspective. According to the critique, the DDI assessment gives inadequate guidance on "several critical policy questions." The deficiencies are traced to questionable assumptions (successful circumvention of US export controls and surplus capacity in existing Soviet gas pipelines to Western Europe) and to an underestimate of the cost to Moscow of adjusting to the sanctions on deliveries of oil and gas equipment to the Soviet Union.

In reply, we first address the criticisms and questions that apply to the analysis contained in the DDI assessment. We then respond to the NSC criticisms regarding omissions in the assessment.

Criticism of the Key Judgments of the DDI Assessment

The NSC critique finds fault with most of the key judgments in the assessment. We restate these key judgments, summarize the NSC criticism, and give our response.

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DDI Assessment: "Deliveries of gas to Western Europe could begin in late 1984, as scheduled, by using existing pipelines, which have excess capacity of at least 6 billion cubic meters annually."

NSC: The NSC critique argues that even if the USSR has surplus gas delivery capacity amounting to 6 billion m^3 now,

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rising deliveries to Eastern Europe could absorb all of the surplus capacity by late 1984 or early 1985.

Response: We estimated present surplus capacity in the Czechoslovak transit pipeline system at 6 billion m^3/yr and believe this to be a conservative estimate in that the capacity of the system is expected to increase through 1985 and beyond, if necessary. Our estimate of surplus capacity took into account the planned increase in deliveries to East Germany, Czechoslovakia, and Yugoslavia. The NSC critique apparently assumed that all East European gas exports passed through Czechoslovakia. Actually, only about 17 billion m^3/year of some 33 billion m^3 delivered to Eastern Europe in 1981 passed through Czechoslovakia. The remainder was shipped via other, dedicated pipelines to Poland, Hungary, Romania, and Bulgaria. Finland also receives gas through a separate line.

At present, four large lines enter Czechoslovakia near Uzhgorod on the Soviet border. These lines have an aggregate design capacity of about 70 billion m^3/year, only 60 percent of which is currently being used. The pipelines connecting Czechoslovakia with the FRG, the GDR, Austria, Italy, and Yugoslavia have a combined design capacity of 53 billion m^3/year. Total Soviet gas exports through the Czechoslovak system to East Germany, Yugoslavia, Czechoslovakia and to Western Europe were approximately 42 billion m^3 in 1981, of which 34 billion was delivered to countries other than Czechoslovakia.

We infer that current spare capacity of the lines leaving Czechoslovakia could be as much as 19 billion m^3 (53 minus 34) if

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compressors are added to bring operating capacity up to design capacity. (In this connection, Exxon officials put current excess capacity of these lines at 14-15 billion m^3/year, assuming the diversion of some gas from domestic use and a few minor improvements in existing infrastructure.) By 1985, the capacity of trunklines within Czechoslovakia will be increased by the addition of a new transit pipeline. The likely increment in Soviet deliveries of natural gas to Czechoslovakia--and through Czechoslovakia to the GDR and Yugoslavia--in 1981-85 is 5.5 billion m^3; the deliveries to Western Europe under new contracts will rise by almost 10 billion m^3. While it becomes progressively more expensive to install compressors to bring operating capacity up to design capacity, we believe that the Soviets have plenty of margin to work with in ensuring deliveries of gas to Western Europe through existing lines through 1985. Indeed, if the new transit line through Czechoslovakia is built as planned, the over-capacity in the Czech system could become an embarrassing frozen asset unless the USSR finds more buyers for its gas.

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Soviet Gas Deliveries Through Czech System, by Country

(billion m^3/year)

	1981	1985 Estimated
Czechoslovakia	8.2	11.5
East Germany	6.3	7.5
Yugoslavia	2.0	3.0
Austria	3.0	3.5
West Germany	11.8	18.0
Italy	7.0	7.0[1]
France	4.0	4.0[2]
Total Gas Entering CSSR	42.3	54.5
Total Gas Leaving CSSR	34.1	43.0

1 Italy has not yet signed a new gas purchase contract with the USSR.

2 French deliveries under new contract will commence in 1986.

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DDI Assessment: "Using some combination of Soviet and West European equipment, deliveries through the new export pipeline could probably begin in late 1985 and reach nearly full volume in 1987--about one year later than if the sanctions had not been imposed."

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NSC: The second key judgment seems not to take into account all the available evidence and glosses over substantial uncertainties surrounding: (1) the potential production rate of existing small (10 MW) and notoriously unreliable Soviet turbines, (2) the ability of the Soviets to reconfigure (i.e., without the G.E. 25-MW turbines) a massive project such as the Siberian pipeline within a reasonable amount of time, and (3) the damage to the Soviet economy in delaying or cannibalizing planned domestic natural gas projects in pursuit of the export project. This key judgment also is based on the assumption, made explicit in Table 3 (page 6), that all our allies will violate our export control laws. The substantial business risks to Western European companies of following this course are not treated in this context although they are mentioned in another portion of the paper.

Response: Soviet production of turbine-compressor assemblies rated at 10 megawatts (MW) is expected to increase through 1985 as a result of the expanded US sanctions. Our base-case scenario assumed that the USSR would push production of the 10-MW units --now used on large-diameter pipelines in the domestic gas trunkline system--in the short term and develop the larger, more efficient domestic 25-MW units for longer term requirements. Uncertainty as to meeting production goals and questionable reliability of the product are endemic in the Soviet economy. Nonetheless, the Soviets have completed over 20,000 km of 56-inch gas pipeline--mostly powered with their 10-MW turbines--in the past decade. Maintenance problems are

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encountered more frequently than with Western equipment and costs are high, but the gas flows.

Based on the evidence available, we concluded that strong pressure would be exerted on Western governments and firms to obtain the 40 spare Alsthom-Atlantique rotors and the 22 GE rotors already in Western Europe. Thus, half of the 25-MW GE type rotors ordered for the export pipeline could become available by the time they are needed to support gas exports to Western Europe.

Since our analysis was carried out, 10 of the embargoed 25-MW turbines and 6 compressors have been shipped to the Soviet Union, and more are on the way. The Soviets have said they would cannibalize existing gas pipelines if necessary and transfer spare, or redundant turbine compressors to the export line--implying that they will accept the costs involved. Recently, Moscow announced plans to produce up to 130 of the domestic 25-MW and 16-MW turbine compressors and to fill in with 10-MW units as needed. Thus, current plans call for steadily rising output of both old and new units through 1985. Our analysis assumed that output of 10-MW units would have to double to permit the Soviets to produce and transmit about 570-590 billion m^3 of natural gas in 1985 and still meet their export commitments.

We did not assume or predict that France, the UK, the FRG, and Italy would violate US export laws. Instead, on the basis of the evidence available to us, we judged the use of Western turbines was clearly one of the options (and the best) still open to the USSR in building the export pipeline (pp. 10-12 of the

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Intelligence Assessment). By buying the Western equipment, moreover, the USSR reinforces West European interest in abiding by the gas purchase contracts. Obtaining turbines with the GE and Alsthom rotors would enable the Soviets to meet required deliveries in the early years of the contracts, providing time for any reconfiguration necessary to accommodate Soviet or Western substitutes for turbines not delivered as a result of the US embargo.

We also took into account business risks to West European companies that violate US export control. Based on the experience of the pipe embargo of 1962-64, we believed that Machinoimport would sue the West European equipment companies for breach of contract if they complied with US export regulations. Regardless of the decision made, the equipment firms expected to be hauled into court. Therefore, we concluded that the equipment suppliers would see their own interests served best by honoring those contracts which were entered into in good faith. We also indicated that the positions of the UK, FRG, Italian, and French governments would largely determine whether the turbines were delivered to the Soviet Union. But having closely monitored the evolving positions of the West European companies and governments from the beginning, it was our carefully considered collective judgment that they very probably would not obey the US sanctions.

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DDI Assessment: "At substantial cost to the domestic economy, the USSR could divert construction crews and compressor-station equipment from new domestic pipelines to the export

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pipeline or even dedicate a domestic pipeline for export use to ensure capacity adequate to meet contractual delivery obligations."

NSC: The third key judgment seems not to account for the fact that all other Soviet options (set out in Table 3 of the Assessment) delay full throughput capacity at least one to two years beyond the 1987 date mentioned. There is evidence that the Soviets are more skeptical than the report concerning their ability to domestically produce large turbines--hence the intense and continuing Soviet pressure to obtain Western equipment. New and untested Soviet machines seem an option for which the Soviets have little enthusiasm despite Soviet press announcements.

Response: Reliance on its own resources, would--as we said--be costly to the Soviet Union, but the scale of Soviet pipeline construction is large enough to permit Moscow to reorder priorities so that the export pipeline could be completed by 1987. (Five of the six major trunklines being built in 1981-85 were, from the beginning, to be equipped with Soviet turbine-compressors.) The completion dates associated with each of the options in Table 3 assume, as the footnote to the table says, that none of the other options is pursued. The discussion indicates that the Soviets would probably follow up on most of the options--use Western equipment and step up production of their own turbines (10-MW, 16-MW, and 25-MW).

We agree with the NSC comment that there is room for considerable skepticism about Soviet ability to master the production of the 16-MW and 25-MW turbines. We reported that

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prototypes of these units have been built and tested and still believe that the high-level attention now focused on these turbines will result in some usable output in 1984-86--soon enough to help in equipping the export pipeline.

Nonetheless, the US embargo might prevent the Soviets from reaching full capacity throughput on the export pipeline before 1988. According to our analysis of export scheduling, however, the export pipeline would not have to reach full capacity to meet all existing contracts of up to 21 billion m^3/year (to Austria, West Germany, and France) through 1990. Operating without spares, about 400 MW of installed compressor capacity--i.e., 16 of the 120 25-MW turbine compressors planned (80 on line, 40 spares)--would be required to transmit this amount of gas to the West. If Italy signs a gas purchase contract for 6 billion m^3 per year, the export pipeline could deliver the required total of 27 billion m^3/year in 1990 with normal rates of build-up and only 1,000 MW of installed capacity. For this, 40 of the planned 25 MW-turbine compressors would suffice. If 62 of the GE 25-MW turbine compressors are obtained (22 with GE rotors, 40 with Alsthom-Atlantique rotors), there will be sufficient compression to service the export contracts now envisioned through 1990 and still provide substantial reserve capacity (spares). In addition, the excess capacity in existing lines exiting Czechoslovakia could be used in emergencies. In sum, delays experienced in reaching full capacity after the pipe is laid are highly unlikely to intefere with gas deliveries on the scale now foreseen.

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DDI Assessment: "Only the last outcome--primary reliance on their own resources--would cause the USSR much difficulty. The costs to them will be much higher if they have to build their own gas turbines and compressors for the export pipeline. Specifically, diverting from the domestic pipeline program Soviet equipment sufficient to equip the export line could reduce gas delivery to the domestic economy by as much as 30 billion m^3 annually for a year or two. Other Soviet equipment options would have considerably smaller impact on domestic gas supply."

NSC: This key judgment does not appear to assess adequately the costs and risks to the Soviets of a go-it-alone approach to the pipeline. The Soviets, since the inception of the project, have indicated a strong aversion to developing indigenously an export pipeline. In the first instance, no Western financing would be available--cheap, subsidized or otherwise--for domestically produced equipment. All resource costs would have to be paid in advance by diverting capital from other scheduled projects. This case, which is ranked as an outside possibility by the Directorate of Intelligence, could cost the Soviets 30 BCM in deliveries to their own economy (or Eastern Europe) for at least a year or two. That could represent more gas than the export project--valued at about $5 billion per year. If the Soviets encounter delays, and it is more likely that they will than that they will not, the cost to the Soviet economy could run from $10-20 billion. Conservative Kremlin planners might well decide to scale back their gas export

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ambitions rather than jeopardize ongoing and planned domestic gas pipeline projects aimed at substituting for declining oil resources, not to mention providing natural gas to planned petrochemical, fertilizer, metal and military-related production already scheduled.

Response: Moscow has consistently tried to promote compensation deals in which Western firms provide plant and equipment in return for future product exports. The enthusiasm of Western companies for such agreements outside the energy field has cooled considerably, however. If financing for the import of equipment for the export pipeline failed to materialize, the USSR would almost certainly not abandon the export pipeline as long as it had a market for the gas. Expanded gas earnings are vital to its hard currency earnings in the 1980s, and--as in other commodities--Moscow would shoulder the costs of developing the capacity to export to hard currency areas.

In the assessment we said, "In the extreme case--denial of all Western compressor equipment coupled with a crash Soviet effort on the export pipeline--the USSR could lose roughly 30 billion m^3 of gas production in 1985 because of reduced compressor power on domestic transmission lines." This loss would represent nearly 5 percent of planned gas production in 1985 and 1.5 percent of planned energy production. This was a worst case view of Soviet options, that is, it assumed Moscow would draw necessary equipment from only one domestic pipeline. Unless Soviet Gas Ministry officials were to behave in an uncharacteristically obtuse manner, they would draw smaller

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amounts of equipment from each of several domestic lines, taking advantage of the power input-to-gas throughput relationship so as to reduce the impact on domestic availablility of gas. In any event, when the need for export delivery of gas materializes, the USSR could have as many as 62 Western turbines at its disposal. This equipment would be sufficient to power the transmission of all of the gas likely to be required under the new contracts in 1985 and all of the deliveries likely to be scheduled in 1988.

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Specific Issues and Questions

NSC: Table 1 in the Background section (page 1) is unclear as to whether it portrays actual contract dates or potential Soviet delivery capabilities. While the text indicates the latter, the title of Table 1 implies the former.

Comment: Table 1 portrays neither actual contract dates nor Soviet delivery capability. The text and the footnotes to the table indicate that the data represent potential maximum gas deliveries to individual countries based on levels discussed with the Soviets during contract negotiations. Although the Soviets have committed themselves to begin deliveries under new contracts in 1984 and our assessment concludes they will be able to do so, we cannot predict the rate at which deliveries will increase to full volumes or, indeed, the specific volumes that will be set by periodic negotiations between contracting parties once deliveries have begun.

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NSC: The 30-to-1 ratio between the failure rate of U.S. and

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Soviet industrial turbines obviously was a major factor in the Soviet choice of G. E. Frame V engines. Table 3 acknowledges that pipeline reliability would be "low" if the USSR used its own 16-MW and 25-MW turbines. Yet, the report does not provide a detailed assessment of the impact of a Soviet equipment switch on gas delivery prices and reliability. How many Soviet engines of various sized (10-MW, 16-MW, 25-MW) would be necessary to provide comparable reliability levels to smaller numbers of G.E.-type machines?

Comment: Regarding the relative failure rates of Soviet and Western turbines, we have information indicating that the ratio is more on the order of 4-to-1. In this instance, as in others, the evidence is conflicting and none too reliable. We are familiar with the report on which the 30-to-1 ratio is based; in the evidence available, it appears to be an outlier. In our judgment, a switch to sole reliance on Soviet equipment would not, in any event, affect the price of Soviet gas delivered to Western Europe, which is already governed by existing contracts.

We doubt that the Soviets would install enough of the domestically built turbines in each compressor station to achieve reliability fully comparable to that of Western turbines. In their domestic pipeline stations using 10-MW units, the Soviets typically install 7 (4 on line, 3 standby) or 8 (5 on line, 3 standby) turbines.

On the downside, the eventual price will be determined by a number of other factors, including the market situation, Soviet hard currency needs, and a perception of what the West Europeans

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are willing to pay based on an analysis of the cost of competing fuels. The Soviets are firmly committed to this project and would be extremely reluctant to jeopardize follow-on deals with an excessively rigid stance on "market-out" negotiations initiated by the West Europeans should the price of oil continue to fall.

As for reduced system reliability, the impact would be very small at the margin. The export line will only need to operate at 50 percent of full power to satisfy foreseeable gas export contracts to the West through 1990. At this point the marginal cost of adding more reserve power is small. To repeat, if the Soviets obtain all 40 Alsthom-Atlantique rotors plus the 22 GE rotors on hand in Western Europe, they can service all contracts and still have one spare turbine compressor for every two units on line. This is the optimum ratio originally planned for the first export pipeline; with two lines they expected to have only one spare for every four units on line.

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NSC: How does the conclusion on page 7 that project delays would cost the Soviets $1.5-3.0 billion square with judgment on page 8 that displaced gas would cost the Soviets $6 billion ($200 million times 30 BCM) per year?

Comment: The $6-billion figure cited is an NSC inference based on an NSC assumption that the displaced gas would be 30 BCM. The 30 BCM-per-year loss to the Soviet economy is, as we point out elsewhere, a maximum impact based on improbable Soviet management of the situation. If project delays were to force the

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USSR to ask for a stretch-out in the build-up of gas export deliveries to Western Europe, we estimate that the annual revenues from the reduced flow of gas would be about $1.5-$3.0 billion less over a one or two year period than with a normal build-up (a reduction of 7-15 billion m^3 in gas exports, assuming a floor price of $191 per 1,000$m^3$ or $5.40 per million BTUs). If the Soviets instead decided to divert domestic gas supplies to the export project because of pipeline construction delays, the substitution of crude oil withheld from hard currency export markets to replace the gas would result in a loss of almost $200 million (see IA, page 8) for the oil equivalent of each one billion m^3 of gas displaced. (It would take about 6.3 million barrels of oil to replace 1 billion m^3 of gas. At a price of $30 a barrel, the loss would be $190 million.)

We believe, however, that because of the Soviets' need for hard currency and their ability to sell crude in spot markets at higher relative prices, the amount of oil withdrawn from export markets would be quite limited--certainly a small fraction of the 180 million barrels per year implied by the NSC figure of $6 billion.

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NSC: What is the significance of the fact, cited on page 8, of Soviet uncertainty in being able to provide enough compressors for currently planned domestic needs? Does this not make diversion to export lines extremely difficult? Also, how many domestically produced turbines would be required to realize the full capacity of existing export lines?

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Comment: Soviet planners are always concerned--with good reason--about their ability to meet plans. With greater effort and the commitment of more resources they hope to do much better in turbine production. The export pipeline project clearly has an extremely high priority.

Within the USSR several major trunkline systems connect the important gas producing regions with the export terminal at Uzhgorod. Gas from the Tyumen', Komi, Volgograd, Central Asian, and Ukrainian fields can be tapped for export needs. Incremental compressor needs on the existing trunkline systems in the USSR should be minimal since all the major lines have been commissioned and fully operational for several years. In order to raise throughput of the relevant Czech transit pipelines from 34 billion m^3 annually up to full design capacity of 53 billion m^3/year, it would be necessary to add about 240 MW of installed compressor capacity; or roughly 24 10-MW units, 15 16-MW units, or 10 25-MW units. The units could be ordered from the Western firms now soliciting orders from the Czechs. If another transit pipeline is built as planned, it would take up to 12 more 25-MW units to deliver 25-28 billion m^3 of gas.

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NSC: The Directorate of Intelligence does not provide sufficient analytical attention to the implications and costs of these choices. For example, it takes time and money to switch industrial consumers of energy from gas to oil in the event priority is given to the gas export pipeline. The downstream political and economic costs of these policy options could

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potentially reduce or neutralize earnings from sales of natural gas to Western Europe.

Comment: In discussing the potential loss of gas to the domestic economy, the intelligence assessment indicated that, as part of the internal adjustment process, the Soviets could "curb efforts to substitute gas for oil and coal." A failure to switch an oil-consuming enterprise to gas involves no direct cost. The enterprise merely goes on using oil. Moreover, many industrial boilers and power plants are already configured to burn either fuel. The text did not imply that existing users of gas--without dual-fuel capability--would be required to switch back to oil through replacement of equipment.

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NSC: The report describes the success of the US embargo (page 12) as a "remote contingency" after pages of discussion (pages 8-10) in which costs of violation of the embargo are clearly delineated.

Comment: Our assessment (pages 8-10) clearly delineated the costs to the companies of complying with the embargo. Our overall judgment on page 8 was that "In the absence of government intervention, most of the firms probably would obey the sanctions." But the handwriting was already on the wall. On pages 10-11 we pointed out that two governments (Paris and London) had already ordered firms in their countries to ignore the embargo; that a third (Rome) would stall as long as possible but if forced to take a stand probably would follow the French

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and British lead; and that the fourth (Bonn) was encouraging its firms to do the same.

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NSC: The Directorate of Intelligence should clearly describe the evolution of the project since its inception in order that the impact of U.S. opposition and the changes in European demand for gas can be accurately assessed. Original versus currently projected delivery volumes, price, hard currency earnings, number of participating countries, financial packages, and gas dependency percentages should all be addressed. The influence of the President's announced opposition to the project in July 1981 at the Ottawa Summit and subsequent actions should be estimated on the current scaling-down and withdrawals from the project, e.g., Belgium. What is the percentage of the scale-down from its original dimensions?

Comment: The role of US policy in the scaling down of the pipeline project over the last year or so is difficult to isolate. Originally the pipeline was to consist of one 48-inch, 100-atmosphere line. This single-line system could have moved up to 40 billion m^3 of gas to Western Europe. By late 1980, Moscow favored a dual, 56-inch system operating at lower pressure. The subsequent scaling down to the current single, 56-inch, 75-atmosphere line was almost entirely due to a reexamination by the West Europeans of the prospects for gas demand in the 1980s. Increased West European gas prices and lowered economic growth projections led to lower projected gas requirements and a

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reexamination of the desired level of imports from the Soviet Union.

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NSC: The report should provide a more detailed estimate of the match or mismatch between hypothetical Soviet gas export capabilities and contracted delivery schedules for the period 1984-1995. The conclusion that the Soviets can pump some gas westward in late 1984 remains unpersuasive. The more critical question is whether they can meet European demands as they arise throughout the life of the contract. The report assumes that with only 60 of the imported turbines the Soviets will deliver 90 percent of the gas. Other experts estimate, however, that between 80-90 turbines would be required to achieve this throughput.

Comment: The difference between ourselves and NSC on the compressor-power requirements to achieve 90 percent of design throughput capacity may arise from the inclusion of stand-by capacity in the NSC figure. According to the relationship between compressor power and throughput that we obtained from an industry source (and which was not challenged in two meetings of industry experts), only 54 25-MW turbine compressors would be required to achieve 90 percent throughput. Fourteen more 25-MW units would provide substantial back-up power in the event of outages.

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NSC: A technical assessment of the types of problems the Soviets are likely to encounter in reengineering the export

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pipeline to deal with fewer or a mix of compressors/turbines would be most useful. For example, if the main control computer is designed for a GE machine, many experts believe you cannot substitute a Soviet machine and expect it to function adequately. The layouts of Soviet and Western-designed compressor stations are different and Soviet and Western equipment also differ in drive characteristics and power and air intake requirements. The report fails to assess who would be responsible for designing and implementing these changes and how the price of the gas might be affected. Would redesigning the project change its economic attractiveness from either the Soviets and West Europeans?

Comment: The Soviets will encounter technical problems if they use a smaller number and a different mix of turbine compressors than originally planned. Matching controls with a mix of domestic and foreign compressor equipment will be difficult. The Soviets, however, have produced about 30 of their own control systems. Their first automatic control system, the A705-15 system, was developed in 1974 for the GTK-10MW turbine compressor. Some of the systems operate with a mixed array of foreign and domestic compressor equipment. It is quite feasible to use compressors of various sizes as well as compressors from different countries on a pipeline as long as any given station is equipped with only one model of compressors.

Omissions in the Assessment

Over and above its review of the material included in the CIA assessment, the NSC critique suggests that several topics

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that were not covered should have been. In particular:

- "Notably absent is an historical analysis of the project and the likelihood of it being potentially rescaled upward to its original dimensions or more over the life of the project."
- "The report should attempt to quantify the costs of disruptions to the Soviet and East European economies if current energy development plans need to be restructured in order to meet the Soviet delivery commitments to the West in the mid-80s and beyond."
- "An assessment should be made of the longer term effects and costs of the uncertainties introduced by current U.S. policies (opposition) on future purchases or off-take rates by existing or potential European purchasers of Soviet gas."
- "The geopolitical, energy and economic security advantages to Moscow need to be spelled out more precisely including the Soviets' use of trade incentives to neutralize or roll-back Western strategic interests during a period of rapid military buildup and the current crisis in Eastern Europe and Afghanistan." (The NSC critique, in this connection, asks for analysis of the effect of dependence on Soviet gas of West German states on "alliance cohesion and resolve," the USSR's record of manipulating energy supplies, of the USSR's history of technical reliability in supplying gas.)

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- "The Directorate of Intelligence should address some of the problems in using Alsthom rotors, including its financial impact on the turbine producers."
- "An assessment should be made of the potential impact of North Sea gas and the development of other non-Soviet sources to diminish the marketability of Soviet gas to Western Europe."

Most of these topics are central to a full-blown treatment of the implications of the export pipeline for political, economic, and security considerations. The August assessment, however, was an update specifically addressing Soviet and West European reactions to the sanctions and the options open to them. In any event, we have tried to speak to these larger questions in the recent SNIE ("The Soviet Gas Pipeline in Perspective," SNIE 3-11/2-82, 21 September 1982.)

The SNIE, in particular, addresses the issue of a second strand ("scaling up"), noting that "factors that led the Soviets to conclude the recent Siberia-to-Western Europe gas deal--huge gas reserves and continued need for hard currency earnings--almost certainly will lead to a proposal for new export contracts that will require additional export pipelines." The new estimate provides further discussion of the issue of follow-on gas projects. This subject was also covered in our study, "West European Natural Gas Requirements: Looking to the 1990s," May 1982. Although a brief historical background of the pipeline project is found in the SNIE, a more thorough treatment may have been useful.

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It is our judgment that current Soviet energy development plans will not need to be restructured to meet gas delivery commitments to Western Europe at least through the late 1980s. The SNIE makes this point early on. Because enough Western equipment has been delivered or soon will be, the diversion of Soviet equipment from domestic use is much less likely. At the time the original assessment was written, we were not certain that the West European equipment manufacturers would violate the US embargo.

We did not attempt, either in the August assessment or the SNIE, to assess explicitly the longer term effects of US opposition to future purchases of Soviet gas by West European countries. When the Intelligence Assessment was prepared, we saw the potential delivery of Western compressor equipment (at least to the extent possible utilizing the 22 GE turbine rotors then in Western Europe) as likely to reduce substantially the impact of the US embargo on the current Soviet pipeline project. We considered the longer term effects of US opposition to be very much an open question. Future West European gas demand, alternative sources of supply, and the whole range of factors bearing on West European consideration of a possible follow-on gas pipeline deal with the Soviets are highly uncertain. Nonetheless, several considerations militate against optimism regarding potential US influence. The past performance of some of our NATO allies suggests a substantial capacity for evaluating priorities independently and choosing courses of action at variance with US desires or US interpretation of agreements.

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West European consideration of energy relations with the Soviet Union will continue to be strongly influenced by European perceptions of the risks involved. In future gas contract negotiations, moreover, the demand situation and the degree of attractiveness of the Soviet selling price for gas might weigh more heavily than US objectives, however well founded.

In addition, the ability of the United States to exert leverage over West European decisions by exercise of an embargo on oil and gas goods and technology is subject to fairly rapid erosion. Within a few years, manufacturers in other Western countries can probably replicate nearly all of the oil and gas goods that now are the product of US technology. Because the US domestic market has been the major market for much drilling equipment, there has been relatively little incentive to set up production of many specialty items elsewhere. As illustrated by the consequences of past embargoes, denial of supply of needed equipment from the United States tends to provide a strong incentive for production elsewhere. Given the long lead times necessary for developing alternative gas supplies and the likelihood the Soviets would continue to price their gas at or below existing or potential alternatives--issues covered in both the August assessment and the SNIE--the implication was that if additional gas were offered at an attractive price and demand were sufficient, the West Europeans would opt for additional Soviet gas. The domestic political and economic impact of US sanctions on our West European allies, while an issue certainly worthy of examination, was considered a subject to be outside the

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scope of the August paper. The short-term, immediate reactions of the Europeans were addressed in both the August assessment and the SNIE.

We feel the geopolitical and economic security advantages of the pipeline project to Moscow are clearly spelled out in the SNIE. The benefits to Soviet military programs and the advantages to the Soviet Union of trade with the West are covered. The issues of dependence of individual West German states on Soviet gas, the USSR's record of "manipulating" energy supplies, and Moscow's technical reliability as a gas supplier have not been addressed specifically. But in the DDI assessment and in other papers, we noted that the West Europeand believed that these considerations were unimportant or that adequate safeguards were available to prevent Moscow from exercising leverage.

We do not think there would be serious difficulties in using the 40 Alsthom rotors already contracted for. Their price has been set, and we expect that their technical qualityu will approximate that of GE-built rotors. There may be some problems in deciding exactly where and how the French rotors should be used, but these should be surmountable. In an earlier version of the August assessment we dealt with the potential problem of using Alsthom-Atlantique rotors beyond the 40 already contracted for, indicating that such a solution "would probably require some type of subsidy for the higher-priced Alsthom rotor, either by direct-equity financing on the part of the Soviets, Soviet acceptance of higher prices, or a subsidy on the part of the

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French Government." This statement, while not adequately addressing the issue, did not survive the final round of editing. We should and will do more work on this issue.

The new estimate takes another look at the issue of alternative sources of natural gas including North Sea gas and supplies from African and Middle Eastern producers. The issues of potential West European gas demand, which should also be considered, and alternative supplies are dealt with in detail in the following DDI Intelligence Assessments:

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