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**Outlook for the
Siberia-to-Western Europe
Natural Gas Pipeline**

Key Judgments

We believe that the USSR will succeed in meeting its gas delivery commitments to Western Europe through the 1980s. Moscow has a wide range of options to accomplish this end:

- Deliveries could begin in late 1984, as scheduled, by using existing pipelines, which have excess capacity of at least 6 billion cubic meters (m³) annually.
- 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.
- At substantial cost to the domestic economy, the USSR could divert construction crews and compressor-station equipment from new domestic pipelines to the export pipeline or even dedicate a domestic pipeline for export use to ensure capacity adequate to meet contractual delivery obligations.

The task confronting the Soviets is made easier by the nonlinear relation between compressor power requirements and gas throughput in pipeline operations. By obtaining the 20 or so turbines built with the GE-made rotors already in Western Europe and operating compressor stations without standby units, Moscow could deliver through the new pipeline about three-fifths of the planned annual throughput of nearly 30 billion m³. Turbines using an additional 40 rotors—the number Alstom-Atlantique contracted before the US embargo to build for the Soviet Union under GE license—could boost throughput to nearly 90 percent of capacity. For reliability of pipeline operation and periodic maintenance, however, the Soviets would probably use some of the available turbines as standby units, thereby limiting throughput to about three-quarters of capacity.

Completion of the pipeline has become a top-priority objective for the Soviet leadership. On the economic side, they look forward to some \$5 billion a year in new hard currency earnings from gas in the early 1990s (after repayment of pipeline borrowing) to partially offset declining oil export revenues. In their view, moreover, the United States' imposition of

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sanctions has made completion of the pipeline a matter of national prestige and has provided an opportunity to foment dissension in the Western alliance.

The West Europeans see Soviet gas as a relatively low-priced substitute for uncertain Middle Eastern oil and also view the Soviet pipeline equipment orders as easing their substantial unemployment problems. In addition, they hold that increased East-West economic interdependence will lead to more responsible Soviet behavior. They are deeply angry about the US decision, especially the extraterritorial and retroactive features of the measures, which they regard as a serious infringement of their sovereignty.

As a result, the West Europeans are seeking ways to defeat or circumvent the extended US sanctions. Paris has ordered French firms to honor their Soviet contracts, and

Rome has said that pipeline contracts will be honored but has not yet ordered Italian firms to do so.

Taking all this into account, we think the likely Soviet choices for completing the export pipeline—in descending order of probability—are:

- Shipment of completed turbines built with the 20 or so GE rotors already in Western Europe.
- Production of the 40 GE-designed rotors by the French firm Alsthom-Atlantique under its existing contract with the Soviets—the move already announced by Paris.
- Production by Alsthom-Atlantique of 60 additional GE rotor sets, to be supplied to the West European turbine manufacturers.
- Western assistance in manufacturing rotors for Soviet-designed megawatt turbines.
- Soviet redesign of pipeline compressor stations, substituting a combination of smaller turbines or other drivers of either foreign or Soviet design.

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 m³ annually for a year or two. Other Soviet equipment options would have considerably smaller impact on domestic gas supply.

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