charge that the impact will be greater than the figures indicate. Consider, for example, the impact on NIH.

NIH currently funds about $3.1 billion worth of R & D. Of this, some $470 million supports intramural research and about $2.6 billion goes to outside grants and contracts. Thus, under Rudman's bill the SBIR program in NIH would get $26 million a year (1 percent of the extramural funds) and under LaFalce's bill it would receive about $90 million (3 percent of the total funds). But some two-thirds of NIH's budget is already committed to multi-year programs, so the SBIR funds would come predominantly from money that would otherwise be devoted to the support of new projects. A similar situation prevails in NASA, where major projects account for most of the agency's budget. "NASA can't cut back on the shuttle, so it will take (funds for SBIR programs) out of basic research," argues Newton Cattell of the Association of American Universities.

Cattell and other critics of the legislation all say that they support the objective of providing federal seed money to small businesses, but they object to the establishment of rigid quotas—Cattell refers to this as "a tax on research." Ronald Lamont-Havers, head of research policy at Massachusetts General Hospital, argued in congressional testimony last June, for example, that "to set aside a specific pool of funds exclusively for applicants from small business would suggest a priori that these scientists could not otherwise compete successfully. . . . I resent the diversion of funds from high to low quality projects, an inevitable consequence of this set-aside proposal."

Small businesses have received a paltry share of federal R & D funds.

During hearings on the bills by both House and Senate small business committees, spokesmen from federal research agencies and from academic organizations argued for more flexibility, suggesting that the SBIR programs should compete for agency funds in the usual budget process, just like any other program. The bills' sponsors have argued, however, that small businesses have so far received such a paltry share of federal R & D funds that a mandatory quota system is needed to force a change.

Concerns over the bills have so far been submerged in the congressional enthusiasm to support small business—an issue that traditionally gets a sympathetic reception on Capitol Hill. But if the House committees on science and technology and on energy and commerce get a chance to consider the legislation before it reaches the House floor, the debate should receive a good deal more public visibility.—COLIN NORMAN

United States Objects to Soviet Gas Deal

Germany and France brush aside America's warnings and forge ahead with plans to finance a Siberian pipeline

There could hardly be clearer evidence of the Soviets' growing involvement in Europe than the deal to be concluded this month between the Soviet Union and Western Europe to build a 3000-mile natural gas pipeline from western Siberia to West Germany. It will be four times the length of the Alaskan oil pipeline, making it the largest project of its kind.

As European leaders are poised to endorse the agreement, the Reagan Administration and some members of Congress have begun to speak out anxiously about its strategic importance. Unlike military scenarios, which are based on the hypothetical use of force during a future war, the Soviet gas deal represents a concrete delineation of East-West relations. Western Europe in this case plays the role of the dependent. The realization that it is too late to alter this has prompted a new debate within the Administration on how to handle strategic trade issues in the future.

Soviet President Leonid Brezhnev is expected to arrive in Bonn, West Germany, on 22 November. By then the price negotiations should be finished and the pipeline agreement ready for signing. West Germany is expected to close a deal for which it has been the chief negotiator over the last 3 years, a complicated trade that will provide Western financing, high-quality steel pipe, and sophisticated compressors in return for long-term gas supplies from the huge Urengoi field in western Siberia. (The Soviet Union is the world's largest oil producer, holds one-third of the world's gas reserves, and has just become the world's largest gas exporter.) The pipe from the Urengoi field will provide gas for half a dozen European countries and will make France, Germany, and Italy dependent on the Soviet Union for 30 percent of the gas they use.

During the most recent public review of the Siberian pipeline deal, held on 12 November before the Senate Banking Committee, the two senators present vied to come up with the best cliché to describe the predicament confronting the Reagan Administration. Chairman Jake Garn (R–Utah) said that even at this late hour, the United States should try to dissuade the Europeans from signing the agreement. It may be like closing the barn door after the horse has escaped, Garn said, "but we may be able to run down the lane and catch up with that horse." John Heinz (R–Pa.) said he thought it was too late to intervene and that the U.S. government had already "shot itself in the foot." This was not surprising in itself, Heinz said. "What amazes me is the speed with which we can reload and shoot ourselves again," he added. Both senators said that the United States should have made an effort earlier to provide other sources of energy for the European countries interested in buying Soviet gas.

Despite the clear disagreement of an Administration witness, Garn said it might be a good idea to create an office of strategic trade within the Commerce Department. It would act as a central

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clearinghouse for cultural, scientific, and technological exchanges between the United States and the Soviet Union. Garn proposed this in a bill in the last Congress. Lawrence Brady, assistant secretary of commerce for international trade, said during the hearing that having such an office would not make his job of monitoring strategic trade any easier.

Robert Hormats, assistant secretary of state for economic and business affairs, gave a few details of the Administration's last-ditch effort this fall to block the Siberian pipeline agreement. Hormats and other diplomatic officials, led by Under Secretary of State for Economic Affairs Myer Rashish, traveled to France and Germany in the first week of November to try to persuade the Europeans that the pipeline was a bad idea. Their arguments were firmly turned aside. One measure of the Germans' resolve, Brady said, is that the basic decision to proceed with the pipeline was made in April 1980, when the Carter Administration was leaning heavily on U.S. allies to punish the Soviets for invading Afghanistan. If American persuasiveness failed then, Brady suggested, it is not likely to succeed now.

According to Hormats, the November mission did accomplish the small feat of "sowing doubts in the minds of the Europeans about the price and supply assumptions on which the pipeline project is based." The U.S. delegation argued that the energy market has changed since the panicky 1970's. The United States has decontrolled oil prices and will soon release gas prices. This will decrease demand, encourage exploration, and make more supplies available for Europe, the Americans said. Hormats pointed out that European demand for natural gas declined 4 percent last year.

The French and German officials were not swayed by the argument that the energy supply crisis is over, nor were they impressed with U.S. promises to increase coal shipments to Europe and to help the European nuclear industry. They did not agree with the U.S. view that liquefied natural gas from Nigeria could be an adequate substitute for Soviet gas. Nor did they consider Algerian gas as attractive. While the Europeans were interested in all these proposals, Hormats said, "They have been firm in characterizing energy alternatives as supplementing—but not replacing—increased pipeline imports of Soviet gas."

The Europeans also maintain that buying energy from the Soviet Union will not make them any more vulnerable to blackmail than they are today. If Soviet oil exports decline in the late 1980's, as is expected, Western Europe will simply substitute Soviet gas for Soviet oil. The overall level of dependence on Soviet energy supplies will not increase, Europeans insist. Hormats disagreed, saying that there are particular new liabilities associated with the pipeline construction project.

The liabilities were described in the darkest terms by Richard Perle, former aide to Senator Henry Jackson (D–Wash.), now assistant secretary of defense for international security. Perle ticked off six concerns:

- Once the gas begins flowing at a rate of 35 billion cubic meters per year, the Soviets will earn at least $5 billion (1980 dollars) annually from sales. This large new source of foreign currency will make it easier for the Soviets to buy advanced technology from the West, "much of which will support the modernization of the Soviet military establishment." State Department official Brady added that the Soviets are already negotiating with France to buy computerized flow-control equipment to be used throughout the petroleum industry. International agreements now forbid Western nations to export these computers to the Soviet Union. If an exception is made in this case, it will become difficult to prevent the transfer of other high-technology items in the future.
- The Soviets will use their new income and their pipeline construction contracts to buy political favors in Europe, according to Perle.
- The dependence on Soviet gas will be more significant than an equivalent dependence on oil for two reasons, Perle said. Much of the gas will be burned for home heating and cooking, uses which cannot be curtailed even during a crisis. In some areas of West Germany, 50 percent of the houses will use Soviet gas. Second, the gas delivery system is not as flexible as the oil supply system. Stockpiling is more expensive. There are no spot markets offering short-term supply contracts. Delivery must be made through a centralized grid. "Even in the absence of a crisis severe enough to lead to a cut-off," Perle said, "there is the day-to-day influence that must flow, like the gas itself, through a pipeline to which there will be no practicable alternative. . . . Is there any doubt that our allies listen more carefully to kings and rulers who supply them with energy than to those who do not?"
- The pipeline will bring financial as well as political liabilities. Virtually all of the risk will be carried by Western banks, which have agreed to lend the money to the Soviet Union at very low rates—between 7.5 and 8.5 percent. This arrangement puts the Soviets in an advantageous position should it be necessary to renegotiate the agreement.
- This enormous capital investment, amounting to about $15 billion worth of equipment produced in the West, will displace many smaller investments in energy projects that might have been made outside the Soviet Union.
- Finally, Perle said, "We believe that there is a serious chance that the German housewife in the long run will end up paying more for Soviet gas than she would have to pay for available alternatives."

Perle said that the Administration had tried, "not always with blinding clarity," to make known its opposition to the deal. But he conceded that the government had done too little and taken too long preparing its case to have much impact. Part of the trouble, he indicated, was that the President has been getting conflicting advice on what should be done.

Perle himself recommended that the government should "withhold American technology in every case where such action will underline our opposition and make alternatives more attractive." In its vagueness, the phrase conveyed the Administration's uneasiness about trying to break up a large trade deal which is all but set in concrete. If West European businesses will profit from the pipeline trade, how can a free-market advocate like this Administration justify excluding American companies? That is the present dilemma.

During the hearing, Garn asked whether the United States could do anything to stop the construction of the Siberian pipeline. The consensus, as he learned from even the strongest opponents of the deal, is that it is too late.

—Eliot Marshall

The dependence on Soviet gas will be more significant than an equivalent dependence on oil, Perle said.