SSC's Forlorn Quest for Foreign Partners

So far, only India has responded to DOE's overtures, but there are high hopes for the Soviet Union

EVER SINCE THE REAGAN ADMINISTRATION first proposed the Superconducting Super Collider (SSC) in January 1987, government officials have promised there would be significant international participation in building the machine. Four years later, Department of Energy officials are still looking for their first big foreign contribution. Buy-American signals from Congress, uncertainty about funding, and the fact that Europe is hoping to build its own super accelerator (the Large Hadron Collider), have undermined the department's sales pitch. And countries such as Japan and Korea, once touted by DOE officials as sure bets, no longer seem as interested in making a major investment. Says one State Department official sizing up the diplomatic landscape, "I don't see much movement with Japan or anybody else."

Almost anybody else. Just when it may seem that the last thing the Soviet Union could afford is a piece of an $8.25-billion technomarvel, a plan has been circulating at DOE that would have the Soviets supply components, including 600 water-cooled copper magnets, for the medium-energy injector, a 2.4-mile-long accelerator that will speed protons into the main SSC ring. In return for supplying equipment for the injector ring, the Soviets would get a cash payment amounting to one-third to one-half the value of the hardware. This revenue would then be used to buy modern research equipment from U.S. suppliers. To SSC Laboratory director Roy Schwitters, a Soviet connection would provide more than an opportunity to defray some costs: "The Soviets have great experience in this area and they have great accelerator physicists."

One possible snag, however, is that the Soviet Union may not have enough political stability to be embarking on such a joint venture. DOE Deputy Secretary W. Henson Moore was planning to go to Moscow in January or February to negotiate a deal, sources say, but his trip was canceled on orders from the State Department because of the unrest in the Soviet Baltic republics. Another potential problem is the instability of the central government. "I have got to say that the political situation in the USSR is so uncertain now that it is difficult to know who can speak for this, or give a commitment," says Schwitters.

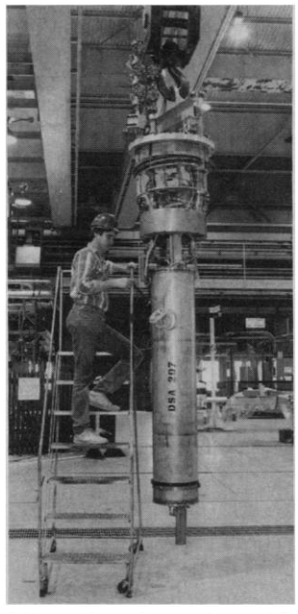
All of which leaves the international thrusts of DOE, to say the least, ill-starred though not yet stymied. All along, DOE has predicted that up to one-third of the cost of the project would come from state and foreign contributions. But so far, the only firm commitments DOE can point to are $1 billion to be provided by Texas and $50 million from India. "It looks pretty dead out there," one national laboratory director told *Science*. A possible exception is particle detectors, where multinational cooperation could exceed $500 million in hardware and instruments, DOE officials say; but no firm offers are yet in hand.

One obstacle for would-be contributors, says Schwitters, has been uncertainty about just what their money would buy in terms of participation in the operations of the SSC. "What is required," he says, "is a set of government-to-government agreements that will provide the framework" for resolving these issues. Japan, which at one point was thought to be willing to invest $500 million in the project, is said to be particularly reluctant to proceed until such agreements are worked out.

As for Western Europe, DOE officials acknowledge that overall contributions to the project will be difficult to secure if Europe decides to go ahead with the Large Hadron Collider. Indeed, at present, only Italy is seen as likely to make a significant contribution. Similarly, Canada—which DOE officials once expected to provide as much as $300 million—will be less inclined to make a major investment if it builds its own expensive Kaon accelerator (*Science*, 4 January, p. 26).

Which is why DOE is looking beyond the Western industrialized countries and Japan, to the Soviet Union and to smaller countries with limited resources to invest in the project. Under one possible approach, a country with little hard currency would establish a cash fund in its own currency, financed by private donations or government contributions, and the SSC project office would use those funds to buy goods for the collider from that country.

Relative to Soviet prospects, William Wallenmeyer, former director of high energy physics at DOE and current president of the Southern Universities Research Association, is optimistic despite the cancellation of Moore's trip. He notes that Soviet and U.S. particle physicists have managed to work together for 30 years, including periods when superpower relations were far more strained than they are now. And Wallenmeyer is not alone: "Unless things take a really bad turn," says one source at State, "I think we will work something out." SSC officials and at least one national lab director also insist that, with imagination, horse trading, and some creative diplomacy, there is still time to get other countries—big and small—involved. The next few months, they say, are likely to be crucial as negotiations proceed on several fronts.



Brookhaven National Laboratory

Attractive investment?
Test magnet at Brookhaven.

But what if contributions from foreign governments are not forthcoming? One result might be that DOE could face political problems in procuring hardware from overseas companies. James F. Decker, acting director of the Office of Energy Research, says DOE intends to open procurement contracts to all bidders, regardless of nationality. Indeed, Japanese companies such as Hitachi, Ltd., made it clear at an SSC industrial meeting held in Atlanta last month that they are ready to bid for contracts to supply magnet cable, metal stampings, and cryogenics. But if the Japanese compete for contracts in the absence of a contribution from their government to the SSC, U.S. companies are sure to object, and they are likely to find some sympathy in Congress. Says Anthony Favale of Grumman Corp., "My guess is if they put a U.S. guy out of that business, Congress will go through a wall." ■ MARK CRAWFORD

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