Ebasco Services and Babcock & Wilcox would be pitted against Westinghouse and Bechtel for the contract, since both groups are prepared to build heavy-water reactors. General Atomics and Combustion Engineering would be out in the cold, unless DOE recommends building a second reactor. This idea has been pushed by Senator James McClure (R–ID), ranking Republican on the Senate Energy and Natural Resources Committee.

Not surprisingly, McClure would like to see this plant built in Idaho. But an aide to McClure says the issue goes beyond parochial interests. McClure says more than one type of plant should be built to insure against unforeseen disruptions. In the past, the United States has relied on Savannah River for virtually all of its tritium supplies. In its report to Herrington, ERAB made the same arguments as McClure. Two different reactor designs operating at different sites would guard against a complete loss of production capacity caused by natural disasters, accidents, or equipment failures, the group said.

Some contractors, such as General Atomics, are using the report's language to push their case for building a second weapons reactor to prove out a new civilian reactor design. In addition to proposing to build a heavy-water reactor, Westinghouse has advanced the idea of a "special water reactor." This is a variant of a small, second-generation commercial unit that would incorporate passive cooling features.

Not everyone in the electric utility industry, however, is thrilled at the idea of using DOE's weapons complex as a testing ground for new utility reactors. Although the first generation of civilian plants evolved from military reactors, Thomas L. Mack, vice president of Bechtel Group, Inc., says a strong linkage should be avoided. "It is a question of perception—having the civilian power industry tied to nuclear weapons production," he says.

Funding problems and politics could moot the idea of building a second plant. DOE defense program budgets already are being squeezed by soaring costs for environmental cleanup and modernization of weapons facilities across the country. The department says it could cost $110 billion to complete the job (*Science*, 8 July, p. 155). This burden alone may cause Congress to balk at building a second reactor.

From a supply standpoint, ERAB confirms that one new reactor of sufficient size could meet the country's tritium needs. If a second one is built, concedes Wade of DOE, it probably will be "spread out over a long period of time to minimize the economic impact."

There is also some concern about DOE's ability to manage construction of one new reactor, much less two. Members of the ERAB review panel that *Science* spoke with note that the government has not built a reactor for some time. Even if Congress streamlines the regulatory process, moving ahead with a new reactor program, they observe, will require strong management.

These matters and saber rattling by activists, however, do not faze DOE's Wade. He says he is looking forward to next year's battle in Congress. "We are going to have critics," he concedes, "but we think we will be able to lay on the table projections that will support our case."

As for what will emerge from the wrangling, he predicts it will be a product of give and take among the defense establishment, Congress, and interest groups. Says Wade, "Somewhere in the middle is your answer."

■ **MARK CRAWFORD**

Sagdeev to Step Down

Roald Z. Sagdeev, director of Moscow's Institute for Space Research (IKI in Russian) and one of the most politically influential scientists in the Soviet Union, has announced that he will resign from his post at the end of September.

His resignation was made public at an international scientific meeting recently held at IKI to celebrate the 7 July and 12 July launches of the twin Phobos spacecraft to Mars. Among his associates, however, his decision has been an open secret for more than 3 months.

Whatever Sagdeev's reasons for stepping down—he did not explain them—it seems clear that the choice was his and not something forced from above. Quite the opposite: the success of IKI's planetary program appears to have given him enormous credibility in the Kremlin. He currently serves as an adviser to General Secretary Mikhail Gorbachev on the U.S. Strategic Defense Initiative—he is a plasma physicist by training—and he was elected last year to the Supreme Soviet.

IKI itself operates under the aegis of the Soviet Academy of Sciences, where it has responsibility for the Soviet Union's unmanned space research in general and its planetary exploration program in particular. Probably the closest counterpart in the United States is the National Aeronautics and Space Administration's Jet Propulsion Laboratory. Since assuming the directorship of IKI in 1973, Sagdeev has presided over a series of increasingly ambitious missions to Venus in the 1970s and the early 1980s; a much publicized flyby of Halley's comet in 1986; and now the Phobos launches, which inaugurate a decade of Soviet exploration of Mars.

Meanwhile, Sagdeev has opened up IKI's missions for an unprecedented degree of participation by Western scientists, not to mention scrutiny by Western journalists. He has been a vocal advocate of U.S.–Soviet cooperation on a robotic sample return mission to Mars, and perhaps even on a joint manned expedition to that planet.

Tass from Sovfoto

Roald Sagdeev. *Headed planetary program.*

According to American scientists who attended the IKI meeting, and who know Sagdeev well, his resignation may have been motivated partly by the fact that his outside activities are making it increasingly difficult for him to actually manage IKI; and partly by his own stinging criticisms of the "bureaucratic dinosaurs" that are stifling Soviet scientific research. In a recent article originally published in the Soviet newspaper *Izvestiya*, and then reprinted in a modified form in the U.S. National Academy of Sciences' journal *Issues in Science and Technology*, he called for major reform of the Soviet science establishment—including a requirement that the directors of research institutes be limited to two 5-year terms.

In any case, Sagdeev's future career is at least as nebulous right now as his motives for resigning. (At age 55 he is hardly a candidate for retirement.) Sagdeev himself has said only that he would like to remain as chief scientific adviser on the Soviets' next Mars mission in 1994. Also uncertain is Sagdeev's successor at IKI. In keeping with recent reforms, the new director will be elected by the institute's scientists. One name being prominently mentioned is Alec Galeev, head of IKI's space plasma physics division and a long time protégé of Sagdeev's.

■ **M. MITCHELL WALDROP**