Using these points as a guide, Stockman has proposed that the DOE be relieved of all responsibility for funding "all major synfuel construction projects," and that the authority be given to the SFC instead. Further, he would declare the SFC operational, thereby shutting down the "interim" alternative fuels funding program set up by Congress last year to get the money flowing. This kitty is administered by DOE and the Defense

Synfuels' best friend

Representative James Wright

Department. This recision alone would cut the budget by $5.3 billion. Stockman would also cancel five synfuel demonstration projects in the DOE budget, including three coal-to-gas projects and two others called Solvent Refined Coal I (SRC I) and Solvent Refined Coal II (SRC II), which will produce liquid and solid fuels. These projects would have to seek funding from the synfuels corporation, which requires that 40 percent of costs be borne by private investors. SRC I and II have no more than 10 percent private support. Next, the trimmed-back DOE coal budget would be used to focus on "advanced research, supporting process development research, and continue through fiscal 1983 testing programs on existing coal liquefaction pilot plants."

The basic rationale, according to the Black Book, is "to support a limited number (5 to 8) of first-of-a-kind operating plants to demonstrate technical, economic and environmental problems and costs, and to rely primarily on the private sector to minimize the net expenditure of federal funds. In short, government would aid demonstration of synfuels capability but not subsidize building significant capacity."

Elsewhere in the book, Stockman recommends a flat abolition of the programs giving loans and tax breaks to farmers for producing alcohol fuels. These "have a limited potential to displace oil consumption," Stockman's brief says, and yet they receive over $18 per barrel in federal tax subsidies. The loan guarantees to alcohol producers "help marginal projects attract private financing which would otherwise go to more productive investments."

These revisions are defended in economic terms. But there is another assumption implicit in Stockman's approach which will come out and eventually cause trouble. It is that the oil supply crisis which inspired the creation of the synfuels program is not as severe as the last Congress believed it to be, or in any case, that it will not be mitigated by a panicky investment in gasification and liquefaction plants. The Black Book says virtually nothing about the national security argument, but this is something which the program's backers will be sure to raise. For example, one synfuels loyalist at DOE said last week, "What we really need right now are some more gasoline lines, but I guess we can't count on any shock in the Middle East in the next week."

One of the projects that seems to be in immediate peril is SRC II, whose prime sponsor is Gulf Oil Corporation's subsidiary, the Pittsburg Midway Coal Mining Company. That company joined with the governments of West Germany and Japan to co-finance the SRC II coal liquefaction project on a 50:50 basis with the U.S. Department of Energy. If the United States cancels the agreement and asks that it be turned over to the new synfuels corporation, the entire scheme may come undone. At least that is what Gulf is telling the White House. The problem, it seems, is that the Japanese are outraged by U.S. ambivalence toward a project that took 2 years to negotiate. And the Germans, who are just entering a new fiscal year, have said they will get out if the United States is losing interest. The German parliament is considering that option at the moment.

"Stockman is incorrect in assuming that Gulf can do this project without government involvement," says Dan Denning, a company spokesman. "We need a $1.4 to $1.5 billion plant to demonstrate the technology" on a commercial scale, and "not even Gulf, given our other investment opportunities, can afford that. We should not lose sight of the fact that the world crude oil situation is the same as it was a year ago," Denning warns, and he claims that Gulf has studies showing that Middle East oil producers could cut back production by 8 million barrels a day without affecting their economic programs. Some OPEC coun-

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Moscow Sunday Seminars Resume

Soviet authorities have permitted the resumption of a weekly seminar for scientists who were fired from their jobs after applying for emigration. Known as the Moscow Sunday Scientific Seminar, the gathering forms the only opportunity for the rejected emigres to exchange the results of their independent research. Until last November, the seminar was held at the home of Victor Brailovsky, a cyberneticist, who was then arrested on charges of defaming the Soviet state. Brailovsky's wife Irina, a mathematician, had attempted to continue the meetings, but was prevented from doing so when Moscow police barred the participants' entrance.

At least three seminars have been held since the police relaxed their harassment last month. Earl Callen, a physicist at American University, and Anthony Ralston, a computer scientist at State University of New York at Buffalo, attended the seminar in Moscow on 8 February, when 15 to 20 unemployed Soviet scientists heard a presentation on plastic deformation in crystals by Boris Resnikov. Ralston says that most of the participants were in good spirits, "although they were depressed about their children's futures." The participants were aware of the "seminars in exile" held at major American universities since Brailovsky's imprisonment, and also of Western denunciations of the Soviets' behavior at the Madrid conference on human rights. Ralston says that no one speculated about why the Soviets had permitted the meetings to resume.

Callen says Irina read a statement denouncing the authorities for continuing to imprison her husband without making specific formal charges against him, a circumstance permitted under Soviet law for up to 9 months if approved by top officials. Officials have only recently begun to inquire among Brailovsky's friends and acquaintances for detailed evidence to use against him, evidence that Irina says does not exist. Noting the continuing refusal of certain academic scientists to attest that neither she nor her husband ever had access to state secrets, Irina said, "we are kept here

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because bureaucrats refuse to act," suggesting this made them implicit allies of the KGB.

Research Council Lauds Aid to Aircraft Industry

The National Research Council has tolled a warning bell on behalf of the U.S. aircraft industry, which believes that its preeminence in world markets may be partially threatened for the first time. Noting increasing competition from abroad, the council strongly endorses continuing efforts by the National Aeronautics and Space Administration (NASA) to supply the industry with technological breakthroughs at government expense.

NASA currently spends about $500 million annually researching issues of interest to Boeing, Lockheed, McDonnell-Douglas, and smaller corporations, including such problems as how to reduce fuel consumption, pollution, and noise emission. The research council suggests that not only should NASA's basic research be strengthened, but also that the agency should somehow support the education of more engineers for the industry to hire, and that the agency should gather news of technological breakthroughs overseas and distribute it to American firms.

The basis for the council's report is a workshop in Woods Hole, Massachusetts, held last August. The participants, most of whom were industry representatives or consultants, were alarmed by the fact that most orders for business jets and commuter aircraft (in the short-haul mid-size range) are now held by manufacturers in Europe, and to some extent, in Canada and Japan—upsetting the uniform pattern of American dominance. The participants concluded as a result, according to H. Guyford Stever, chairman of the research council's engineering assembly, that "there is an urgent need for a clear and emphatic statement to reaffirm, clarify, and strengthen NASA's role in aeronautics"—a need that the report presumably satisfies.

Asked about the appropriateness of having a federal program reviewed by the industry it benefits, Albert Evans, a council staff member, says, "Yes, we could ask other people, and maybe we should do that, later. But clearly the most important group to survey first would be those that are supplied by the program."

Many of those sampled went so far as to suggest that NASA should test its inventions, demonstrate them, and then tailor them to the aircraft industry's specific needs. An example of such a program is NASA's current effort to adapt lightweight materials of carbon fibers embedded in plastic to airline use—a program under which Boeing alone has received $20 million in federal contracts.

One of the workshop's few panelists from outside the industry, Joseph Bidwell of General Motors' research laboratory, questioned whether NASA's role ought to include such work, traditionally reserved to industry itself. No such industry-federal program now exists for the automobile, although Congress has recently urged that a joint research effort be established on the NASA–aircraft industry model.

DOE Pursuit of Reprocessing Expected

Among the few government programs exempted from President Reagan's budget-cutting is the Department of Energy's support for research leading to the start-up of a nuclear fuel reprocessing plant at Barnwell, South Carolina. Energy Secretary James Edwards, a former governor of that state, told reporters recently that he endorsed completion of the plant, previously a victim of President Carter's concerns that the United States was establishing a poor international precedent in the area of nonproliferation.

Edwards is expected to follow the advice of the Reagan transition teams that looked into the nonproliferation and reprocessing issues. The teams, which included representatives of the nuclear industry, recommended that DOE fund research to support the potential acquisition of the Barnwell facility from Allied General Nuclear Services, an oil company consortium that owns it now. The idea is that Barnwell be operated under contract "as a large scale spent fuel recovery [plant] and an international plutonium storage and safeguards demonstration," according to the transition teams' report. Although such a plan would ease the industry's problem of nuclear waste storage, it would enrage environmentalists and others concerned about discouraging international trade in plutonium.

NTSB Urges Airplane Safety Improvements

Investigators of the Saudi Arabian airplane accident that resulted in the death of 301 passengers last August have determined that important improvements are needed in the fireproofing of the luggage and cargo compartment in the plane involved, the Lockheed L1011. The National Transportation Safety Board (NTSB), which has been advising the Saudis, has recommended that Lockheed install either a more fire-resistant liner for the compartment or a remote-controlled extinguishing system.

The NTSB's recommendation stems from a conclusion that the in-flight fire that caused the deaths originated near the luggage compartment. The Saudis suspected at first that an incendiary device might have been hidden there, but tests of burned airplane material at England's Scotland Yard ruled out that possibility. Investigators are still unsure of the fire's cause, but they know that it quickly burned through the luggage container's lining and the cabin floor and carpet material, filling the cabin with smoke (see *Science*, 6 February) and destroying certain engine controls.

FAA regulations require that such fires self-extinguish from lack of oxygen before spreading elsewhere. Lockheed claims that the L1011 containers meet this requirement, but the NTSB says "the design does not comply with the [regulation's] intent." Tests showed that a flame could easily spread before all of the oxygen in the large containers is exhausted. Such containers are also used on DC-10s and Boeing 747s, although Boeing says that its cargo compartments already have the fire-extinguishing systems called for by the NTSB.

—R. Jeffrey Smith