on programs—NSF's share, with the exception of the airplanes—has been going down from $618 million in fiscal 1972 to $579.6 million in fiscal 1974.

What will become of the proposed NSF budget? If the past is any guide, the House and Senate will try to increase it, perhaps by as much as $50 million.

OMB may well continue to impound funds or delay them. Asked about this, Stever said he had assurances that OMB was committed to the full fiscal 1974 amount. But he later added "I have my suspicions." OMB witholding could well cancel out any congressional increases.

Most important, however, is the three-way fight brewing over NSF's future mission. The Administration's announcement that Stever and NSF will take over the science advisory role clearly indicated a new dimension for the agency. Meanwhile Senator Edward M. Kennedy (D–Mass.) whose bill, S32, would establish a new, applied wing within NSF, can be expected to try to move it through Congress this session. And the Republican legislators this year intend to submit an alternate bill dealing with NSF's role to the Congress too. If any rash reorganization of NSF comes about, it could affect how much money it finally receives.

—DEBORAH SHAPLEY

Inflation

No one should read the federal budget, or any R & D funding statistics, without bearing in mind the impact of inflation on all the numbers involved.

The federal budgets, with some exceptions in the Department of Defense, do not include inflation rates in their calculations of spending trends so readers must calculate them in as they proceed, to evaluate the actual worth of the funding. The difficulty lies in knowing which inflation rates to apply.

In 1973, the country's general rate of inflation was frequently mentioned as standing near 5 percent. The Administration hopes to cut that rate to 3 percent by 1 July 1973—at the start of fiscal 1974.

However, there is no single rate of inflation that applies everywhere; different fields of science have different rates of inflation, according to Edward C. Creutz, assistant director (research) of the National Science Foundation. Some fields of science use more equipment than others, and he says the cost of equipment, particularly of very sophisticated equipment, inflates more rapidly than do salaries and expenses. Thus, funding for high-energy physics, inflates not at the general, 5 percent, rate but at about 2 percent higher, or 7 percent. Creutz says that a rate of 2 percent higher than the normal rate is a sound, "across the board" number to use for inflation in equipment-intensive fields.

Funds for less equipment-intensive fields, such as mathematics and theoretical astronomy, inflate at the general rate, since the money is spent for salaries and expenses. Scientific salaries are not inflating as fast as they were a few years ago, however, because there is currently a surplus of scientists for some fields, Creutz says.

So for fiscal 1973, an inflation rate of 5 to 7 percent should be applied depending on the field of R & D. Should the Administration succeed in lowering the general rate in fiscal 1974, rates of 3 to 5 percent should be applied.

—D.S.

Energy

With nationwide shortages of fuel oil this winter spurring public fears of an energy crisis, the Administration's new budget propitiously asks Congress for $772 million to support energy-related R & D—an increment over the current fiscal year of $130 million. The new budget conveys continuing confidence on the part of the White House that the nuclear breeder reactor will meet the nation's long-term needs for electrical energy, but, for the short term, the budget carries quite a different message. In essence, the White House wants the nation's utilities to place more reliance on coal—as opposed to oil and natural gas—to meet energy demands through the mid-1980's. And the budget contains some sizable sums to buy the technology to make this new reliance possible.

As the budget's section on R & D puts it:

> Improved technology cannot, by itself, solve all energy and related environmental problems. But it can contribute to substantial reduction of their impact, particularly by the production of clean energy from coal—our most abundant fuel source.

The nation's known coal reserves exceed 500 billion tons, enough to last at the current rate of production for 800 years or more. Much of this, however, is bituminous coal containing up to 10 percent sulfur, an amount that makes it wholly unacceptable for use in most urban areas, especially in the Northeast, where strict limits on emissions of sulfur oxides are enforced. The President's Council on Environmental Quality has estimated that between 1970 and 1985 coal's contribution to the nation's total energy supply will slip from 20 to 17 percent unless economical methods are developed to overcome the sulfur problem.

Accordingly, the 1974 budget asks Congress for $129 million for fossil fuel R & D, an increase of nearly 20 percent over the current year. Most of this would be spent by the Interior Department through contracts to industrial firms; special emphasis would be placed on developing methods for "precombustion cleaning of coal to meet environmental standards." Such methods include gasification and liquefaction of coal and solvent extraction of sulfur from raw coal. A total of $60 million is earmarked for development of this technology in fiscal 1974, an increase of $15 million.

At the same time, the Administration will phase out a program in the Environmental Protection Agency that sought to develop means of scrubbing sulfur oxides from

Energy research and development.

Program	Obligation in millions of dollars*		
	1972 Actual	1973 Estimate	1974 Estimate
Fossil fuel energy			
Production and utilization of coal	74	94	120
Production of other fossil fuels	13	13	9
Nuclear energy			
Liquid metal fast breeder reactor	236	272	323
Nuclear fusion	53	66	88
Nuclear fuels process development	35	42	62
Other nuclear power	87	98	90
Solar and geothermal energy	3	8	16
Other energy related programs	37	50	63
Total	537	642	772

* Includes funds for conduct of R & D and related facilities. Detail may not add to totals due to rounding.