

Bomb Factories of the 21st Century

To keep U.S. nuclear weapons factories humming in the next 20 years, taxpayers will have to put up about \$244 billion, the Department of Energy (DOE) says. This is a rough estimate of what it will cost to sustain the nuclear deterrent (not counting the cost of the weapons or of the troops that manage them) through the year 2010. The estimate comes from a DOE report to Congress released on 12 January, a censored version of the "2010 Report" that went to the White House in December. The committee that wrote it was chaired by DOE Deputy Secretary Joseph Salgado, Jr.

Criticized for its lack of long-range planning, DOE agreed last year to think carefully about where it is heading before asking for more money. The weapons complex is scattered around the country at more than 15 major sites, and many of the plants, DOE admits, are now obsolete. Not only are the buildings and equipment in decline, but environmental and safety standards that apply to them are rising in stringency. Radioactive waste dumps and chemical leaks that were once ignored are now getting attention as suburban development creeps toward them. Environmental groups want quick action, but the White House budget office says it is not possible. DOE is in a bind.

The solution it chooses in this report is to cut back activities at some hot locations while seeking more funds for modernization at others, an increase that is to be split almost evenly among new weapons manufacturing, "environmental restoration," and miscellaneous activities such as waste processing, weapons research, and testing. The increase comes to \$81 billion more than the \$163 billion that would result if the current spending rate were projected out 20 years. Some salient points:

■ **Closings.** DOE would end all materials production at Hanford in eastern Washington while keeping the N Reactor there on "cold standby" until a new reactor is built somewhere else. Reactor fuel and plutonium at Hanford would be processed for the next 4 to 5 years. The department would shut down the Rocky Flats Plant near Denver, Colorado, and the Mound Plant near Miamisburg, Ohio. The work would be transferred to other sites in the 1990s (estimated cost of this move: \$3.6 billion). DOE says these two plants could continue to run safely, but local sentiment is against them.

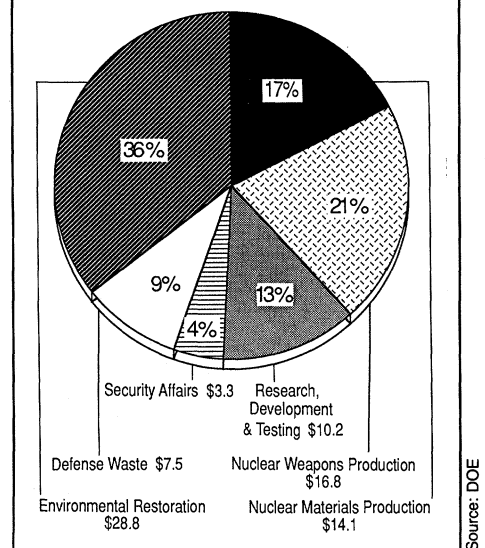
■ **New production plants.** DOE would like to build a new heavy water reactor at the Savannah River Plant in South Carolina and a gas-cooled graphite reactor at the Idaho

National Engineering Laboratory near Idaho Falls, mainly for tritium production (cost of both: \$7.9 billion). It intends to finish construction of a Special Isotope Separation plant in Idaho (\$500 million) "to convert existing DOE-owned fuel-grade plutonium to [weapons grade] plutonium as needed for the stockpile and for a contingency reserve." In addition, DOE would invest \$2.1 billion in an improved uranium enrichment plant at Oak Ridge, Tennessee, and raise its annual expenditures on maintenance at all sites from a rate of 2% of facility replacement cost to 4%.

■ **Waste.** Processing 40 years' worth of accumulated waste will be a big task in the 1990s. In addition to \$17.5 billion in planned expenditures, DOE would add \$7.5 billion to the effort, including \$2 billion for capital investment in solidification plants. The work will go on beyond 2010, but the report does not reveal what DOE plans to do with high-level waste stored in corroding tanks at Hanford. Such problems, it says with less than total clarity, "are very complex and require both institutional consideration and technology development for proper resolution."

■ **Environment and safety.** DOE is already committed to spending \$22 billion on

Growth in DOE Defense Spending, 1990 to 2010
Total Increase: \$81 billion (1990 dollars)



Source: DOE

corrective action or compliance over the next 20 years. In this report, it adds another \$3 billion. In addition, DOE figures that an unbudgeted \$2.7 billion in waste disposal fees will come due. The cost of "environmental restoration," previously estimated to be more than \$100 billion, is put at \$40 to \$70 billion. The amount to be spent through 2010 is put at \$32 billion.

■ ELIOT MARSHALL

How to Handle Misconduct Allegations

Even though incidents of scientific misconduct have been widely reported in recent years, many universities still lack formal procedures for handling possible cases that arise among their own faculty. Thus, the Association of American Universities (AAU), which represents 54 of the leading research universities in the United States, last week published a general policy to help institutions develop their own rules for responding to allegations of fraud, plagiarism, or other types of misconduct.

The framework policy would involve the designation of a senior faculty member to whom allegations should be directed. Allegations of fraud should trigger a preliminary investigation, perhaps by a committee, which should be completed within 30 days of formal notification of the researcher who is the target of the allegation. This phase should take place in secrecy.

If it is determined that further investigation is warranted, a more formal procedure would kick in. The funding bodies should be notified, and a committee should examine the full details of the case. The AAU

framework policy recommends that the investigation should in most cases take no longer than 120 days—considerably shorter than most investigations in the past. Findings should be submitted in writing to senior university administrators for possible action, and to the granting bodies.

If no fraud or misconduct is found, "no disciplinary measures should be taken against the complainant and every effort should be made to prevent retaliatory action against the complainant if the allegations, however incorrect, are found to have been made in good faith," the policy states.

The policy also explicitly notes that universities have a responsibility to pursue allegations of misconduct even after the researcher involved has left the institution. Universities should not resolve matters simply by letting a researcher quietly leave, notes AAU president Robert Rosenzweig.

Rosenzweig says that perhaps two-thirds of the AAU member universities have procedures in place for handling fraud allegations, but "a number of institutions need help."

■ COLIN NORMAN