

government now demands from automobile manufacturers.

To reverse the current US trend away from nuclear power, the plan would introduce regulatory reforms to make it easier to license nuclear reactors and would push for establishing a nuclear waste repository. Licensing actions usually bog down in the courts, and the creation of waste sites has been delayed for years by squabbles in Congress. To guarantee that nuclear energy can continue to supply at least 20% of US energy needs over the next several decades, the strategy seeks accelerated development of advanced reactors built to a single safe standard.

As part of the long-term plan to achieve a stable energy supply, the Administration's strategy points to fusion energy and sets the goals of an operating demonstration plant by 2025 and commercial fusion power by 2040—the same timetable advanced by a special DOE committee under H. Guyford Stever (PHYSICS TODAY, Sep-

tember 1990, page 51). Though fusion enthusiasts were heartened by this, the strategy contains a major weakness, says Steven Dean, president of Fusion Power Associates, an industry group headquartered in Rockville, Maryland: "It doesn't talk about how much should be spent or where the money will come from."

Indeed, although Bush can implement more than half of the energy plan's 100 separate proposals without asking approval on Capitol Hill, its most important elements must be put in place by Congress, and the President will face a tough fight over many of them.

Many Democrats in Congress warn that the Republican President will have to compromise. Some, like Senator Tim Wirth of Colorado, argue that Bush is virtually certain not to get Congressional approval, for instance, to drill for oil in the wildlife refuge or to maintain automobile mileage standards where they are now.

—IRWIN GOODWIN

IT'S GOODBYE DRS. CHIPS, THOUGH PANEL URGES SOME TO STAY

After California's new governor, Pete Wilson, chopped \$295 million from the proposed 1991–92 budget for higher education, the University of California system issued an early retirement plan to meet the fiscal crisis. A total of 636 faculty members, all in their 60s, voluntarily agreed to accept the offer of the university's "Five Plus" plan, which gives them five extra years of service toward their pensions plus a monetary award equal to three months of salary. At the Berkeley campus, 150 faculty members, about 9% of the tenured professors, took up the offer to leave on 1 July. Among them are 5 of the 65 members of the Berkeley physics department. They are Kinsey A. Anderson, former director of the Space Sciences Laboratory; Geoffrey Chew, former leader of the theoretical physics group at Lawrence Berkeley; Kenneth Crowe; Erwin L. Hahn and Robert Tripp.

The situation is something of a paradox. In May a panel of the National Research Council recommended that professors be allowed to teach as long as they want to do so. Specifically, the committee, consisting mostly of professors and headed by Ralph E. Gomory, president of the Alfred P. Sloan Foundation, decided that a provision in the Age Discrimination in Employment Act of 1967 allowing universities to force profes-

sors with unlimited tenure to retire at 70 should be phased out at the end of 1993, as Congress had intended.

In placing professors in a different class from all other workers, who cannot be forced to retire for reasons of age under the law, Congress took a position between those who wanted to extend full protection against age discrimination and those who feared that postponing retirements would result in an increasingly ineffective faculty and, more importantly, would prevent colleges and universities from hiring or promoting younger faculty, the usual source of new ideas and fresh insights. An amendment to the act commissioned the Research Council to study the impact on teaching and research when professors are allowed to stay as long as they want.

The committee cited studies showing that even without retirement age limits, most faculty at the nation's 3200 colleges and universities leave before reaching 70. In fact, says the panel's report, "the proportion of faculty over age 70 is no more than 1.6%." And yet, adds the panel, at some research universities "a high proportion of faculty would choose to work past age 70 if mandatory retirement is eliminated. At a small number of research universities more than 40% of the faculty who retire each year have done so at the current mandatory retirement age of 70."

From the few studies of faculty nearing retirement age, the panel draws a striking picture of those professors who want to continue: They enjoy inspiring students and are in turn stimulated by good students; they are deeply engaged in research; they have light teaching loads and good pension plans. What's more, says the report, "available evidence does not show significant declines in faculty performance caused by age."

But there is also a dark side. At research universities especially, says the Gomory panel, eliminating mandatory retirement results in low turnover, saddling the universities with high salaries for aging faculty who may not be as productive as they once were and reducing the flexibility of schools to respond to changing educational needs. When tenured professors leave, universities have a unique opening to review old departments and venerable subjects and to decide what to eliminate or expand.

The report proposes that colleges and universities "hoping to hire scholars in new fields or to change the balance of faculty research and teaching interests will need to encourage turnover using mechanisms other than performance evaluation and dismissal." Retirement incentives, it goes on, "are clearly an important tool for increasing turnover." Such tactics should be used by both public and private institutions concerned about aging faculty, slow turnover and high pay, the report says. The panel notes that most present-day retirement incentive programs are designed for professors in their 60s and suggests that such plans should be widened to include tenured faculty in their 50s.

The retirements on the University of California's nine campuses do not necessarily mean that many Drs. Chips will depart for good, though. "They can have the best of all worlds," says a Berkeley official. As emeritus professors, they can retain their offices and even continue their research with grants awarded by government agencies. They also are likely to be paid by their home institutions or other universities for the occasional lecture or seminar. Best of all, once freed from teaching classes, grading exams and other customary duties, they can expend as much time and effort as they are able to on their own scholarship and research. Come August, another group of professors in the California system will have an opportunity to choose early retirement, which would take effect on 1 October.

—IRWIN GOODWIN ■