

• Understanding climate. Included in this area is a NASA-led study of solar and earth radiation in order to understand how the climate system gains and loses energy and an NSF-coordinated study of the ocean's role in climate.

The 13-member advisory committee, chaired by Werner Baum of Florida State University in Tallahassee, is expected to review the plan and make recommendations. According to one committee member, the plan "is short on impacts" and clout. But despite its inadequacies, he said it represents an important step toward other much-needed interagency programs. □

Acid rain clouds gather

President Jimmy Carter's recently announced plan to encourage utilities to convert to coal has split the administration camp over the issue of acid rain. Testifying before a Senate subcommittee March 19, Environmental Protection Agency administrator Douglas Costle made public what had been an internal dispute, questioning the adequacy of pollution controls provided in the plan and saying that coal conversion would worsen acid rain if sufficient controls were not added.

The first phase of Carter's proposal, outlined March 6, would give 107 northeastern and mid-Atlantic oil-burning power plants \$3.6 billion to aid their conversion to coal or some other energy source. The second phase, to begin in 1985, would give \$6 billion to other oil-burning power plants that volunteer to convert. An additional \$400 million would be provided in phase one to help finance voluntary air pollution controls.

And there's the rub. Current air quality standards allow larger emissions of sulfur dioxide and nitrogen oxides — which can combine with water vapor to form environmentally damaging acid rain — from coal-burning plants than from oil-burning plants. The EPA had pressed for allowing conversions only if more pollution controls were added to the plants so that total emissions would not increase. But the Department of Energy and coal interests prevailed, saying that tight controls would jeopardize passage of the measure and discourage utilities from converting.

Saying that the plan does not include sufficient pollution controls, Costle told the subcommittee that conversion would increase sulfur emissions by 25 percent and acid rain by 10 to 15 percent. "I would clearly prefer a bill that prevents acid rain from getting worse," he said. "And I have my doubts that this measure will do that." To offset the lack of controls in the plan, Costle called for earlier retirement of older, more polluting power plants and washing of coal prior to burning. □

Proxmire shorn by defamed 'fleece'

Five years ago Sen. William Proxmire (D-Wis.) voted Ronald Hutchinson one of his infamous "golden fleece" awards for allegedly bilking the public of more than \$500,000 "to determine under what conditions rats, monkeys and humans bite and clench their jaws." Complained the thrift-conscious senator, "funding of this nonsense makes me almost angry enough to scream and kick and clench my jaw."

But Proxmire's characterization of Hutchinson's work made the behavioral scientist mad enough to sue — for libel. And the lawmaker's defense against the \$8 million suit — reputed to have cost the taxpayers more than \$120,000 — didn't cut the mutton. The Supreme Court ruled that Proxmire's immunity from libel did not extend off the Senate floor; the golden fleece award was issued as a press release. This week Proxmire announced he had settled out of court for \$10,000, court costs and a press release retracting defamatory and inaccurate charges in the original fleece award. □

Nuclear advertising for objectivity?



Sticker from winning campaign: "Phase out nuclear energy, but in a sensible way."

How can the federal government ensure objectivity when attempting to inform the public about issues as contentious as the safety of nuclear power? Sweden tried competitive advertising.

Over the past three months, the Swedish government has channeled some \$12.5 million into three competing advertising campaigns to inform its citizens on issues relating to the nation's fourth national referendum, a vote on nuclear power stemming from public concern over the Three Mile Island accident one year ago. Handled by separate agencies or groups, each agency advocated and justified one of the three proposals offered on the March 23

ballot: to support nuclear power by building at least six new power plants; to build just six more plants — but only under public ownership and only with the proviso that they be shut down after 25 years; to not support nuclear power, just stick with the six existing plants, which would be phased out within the next 10 years.

The result? Winning with 39.4 percent of the vote was the conditional option, number two. Another 38.6 favored the third — and antinuclear — choice; 18 percent voted for number one. Although the vote was nonbinding on its parliament, Sweden's Prime Minister Thorbjorn Falldin — a member of one of the nation's antinuclear political parties — promised to support the electorate's decision.

Sweden's nuclear program, which began in 1962, now provides 3.8 million kilowatts or about 25 percent of the nation's electricity — the highest average anywhere. In addition to its six operating reactors, four are nearing completion and another two are in early stages of construction. Falldin, who fell from power once already — in September 1977 — over the issue of nuclear power, has said he would withhold operating authorization from two of the nearly completed plants if agreements are not concluded for the reprocessing of spent fuel.

Resource poor, Sweden imports more oil per capita than any other western nation. Although it does hold uranium — perhaps as much as 80 percent of Europe's known reserves — none is being mined. □

Well capped at last

Nearly 10 months after it began spewing oil (SN: 8/11/79, p. 99), the runaway Mexican well in the Gulf of Mexico has been capped. The more than 3.1 million barrels it spilled — twice what the *Amoco Cadiz*, previously the worst spill, had shed — fed massive fires and ribbons of crude that at times traveled more than 600 miles northward to foul Texas beaches. Plugs, fashioned from cement pumped down the 6,000-foot well shaft on March 23, hardened into seals hundreds of feet long. □

Additives at fault in hyperactivity

In the early 1970s a San Francisco allergist, Ben F. Feingold, proposed that food additives are a major cause of hyperactivity in children and that hyperactive youngsters can be successfully treated by eliminating food additives from their diets. Study results have been divided on whether Feingold's theory is valid (SN: 6/25/77, p. 406). But now three studies in the March 28 *SCIENCE* join the affirmative side.

James M. Swanson of the Hospital for
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... Additives

Sick Children in Toronto and Marcel Kinsbourne of the University of Toronto maintained 20 hyperactive children and 20 nonhyperactive children on a diet free of artificial food dyes and other additives for five days. After that the children were given a large dose of food dyes and a learning test, and subsequently a placebo and a learning test. Whereas the nonhyperactive children's performance on the test did not differ following either food dye or placebo, it did differ for the hyperactive youngsters; they made more errors on the test after having ingested the dyes. "Our data," Swanson and Kinsbourne conclude, "suggest that a large dose of food dye blend decreases attention span in hyperactive children."

Bernard Weiss of the University of Rochester School of Medicine and Dentistry and his colleagues studied 22 hyperactive children who had been reported as improved when kept on a diet excluding artificial colors and flavors. During a two and a half month study period, each subject consumed foods that looked as if they contained additives but were really placebos, yet on one or more of these days actually received additives (in the form of synthetically colored foods). The children's parents recorded their behavior during the study period but didn't know when their youngsters were being given additives.

The researchers subsequently analyzed the parents' assessments of their children's behavior. Although 20 of the 22 children's hyperactive symptoms could not be attributed to additives, two of the youngsters' hyperactivity could. One of the two — a toddler — reacted especially dramatically to the additives. In fact, her mother had recorded those days on which she was sure her child was getting additives; she was right in five out of six cases. These data, Weiss and his colleagues conclude, "further strengthen the accumulating evidence from controlled trials, supplemented by laboratory experiments, that modest doses of synthetic colors and perhaps other agents excluded by elimination diets, can provoke disturbed behavior in children."

The third study was conducted by George J. Augustine Jr. and Herbert Levitan of the University of Maryland at College Park. They found that a widely used food-coloring agent called erythrosine can dramatically and irreversibly alter the transmission of nerve messages to muscles in frogs. Because nerve messages to muscles underlie behavior, food additives might well trigger hyperactivity, Augustine and Levitan conclude. They caution, however, that scientists are not yet sure that ingested food additives can penetrate the blood-brain barrier (a tiny network of blood vessels in the brain). Only if additives can make it through this highly selective sieve would they be able to influence the central nervous system and thus behavior. □