

future it will keep technicians on duty at those turbines around the clock.

New York, hardly knowing the trouble it was in, stayed cool for one more hour by bringing in increasingly large amounts of power through its remaining utility ties. But it ultimately proved impossible to bring the system back into balance.

The city was soon drawing 500 megawatts through the two small 138-kilovolt lines connecting it to Long Island—which is hardly a giant power source in any case. The current was well over the rated capacity of the two lines, and the New York power pool headquarters in Schenectady—which had been watching Con Ed's plight closely—decided that something had to be done to save the lines. At 9:30, the power pool ordered Long Island Lighting to sever itself from New York City, and the end followed quickly. Within 10 minutes, Big Allis shut down "by its own protective device," and the system lost a 1000-megawatt generator. The only tie to the outside left was the link across Staten Island. With virtually the entire city hanging on that tie, it overloaded and tripped almost instantly. At its heroic peak it was feeding New York 1000 megawatts, 250 megawatts more than it was nominally capable of providing. When it tripped, the city plunged into darkness and power failure, from which it took 26 hours to recover.

Could such a thing happen in other parts of the country or in Europe? In most quarters, the answer was a thankful "no, probably not." Utility spokesmen in many different European countries said that their well-interconnected power grids and heavy expenditures on fail-safe devices would avert a New York-style blackout.

The British grid system has a reserve of 30 percent over the peak recorded demand. The common reserve in American

utilities is 20 percent for regional networks. "We're criticized for being overcapitalized," said a spokesman for the British Central Electric Generating Board, "but now you can see the difference." Extra capacity would no doubt have put Con Ed in a better position on 13 July, but it does not appear to be the reason the system was unable to compensate. If the system could only have shed enough load to bring itself into balance, it would have affected far fewer people and have taken much less time to bring the power back to normal. New York might have been spared if the automatic equipment in its system had tripped soon after the lightning hit, but preliminary findings indicate that the equipment did not trip until too late.

Con Ed's Emergency Plan

When the load on a system is too great, the effect on the system is generally to slow the speed of the generators from 60 to 59 cycles per second and so on. Under-frequency relays are set to trip at specific frequencies, reducing the load automatically. All regional utility grids are required to file "load shedding" plans with the Federal Power Commission, and the plan filed by Con Ed in April 1977 shows that its schedule is a mild one. In fact, it is less aggressive than the requirements of its own regional coordinating council. The northeast council specifies that members be able to shed 25 percent of their load automatically when the frequency dips to 58.8 cycles per second and shed 50 percent of it manually within 10 minutes. In fact, the Con Ed system will automatically shed only 20 percent of its load at that frequency, according to the April report. At 57.8 cycles per second, indicating that the system is in even worse shape, the Con Ed system will cut out 42 percent of its load.

Apart from the question of the work-

ability of its internal protection systems, is the New York system peculiarly vulnerable to power failure? A number of utility engineers think that a scarcity of interconnections is the heart of Con Ed's problem.

Whereas the largest tie line available to Con Ed is rated at 345 kilovolts, the lines that couple utilities in the Midwest are typically 500- or 765-kilovolt cables. The network that serves Wisconsin, Illinois, and Missouri has one intersystem tie that can carry 7000 megawatts—substantially more than Con Ed's entire load on 13 July. "Their ties to the rest of the world are a lot skinnier than ours," says a spokesman for the Midwest network. One limitation facing New York is that it must rely on underground cables to go underwater. In the past, the technology of underground cables has been limited to lower voltages and therefore lower power ratings. This is undoubtedly the reason the Linden-Goethals tie is only a 230-kilovolt line. But the technology of underground cables is improving, and the strength of a tie can be increased by multiplying the number of cables.

It is too early to draw conclusions, but the circumstances of the blackout raise important questions. Why didn't the automatic equipment activate? When it did not, why didn't someone push the buttons to shed load manually? The violence, damage, and property loss would almost certainly have been reduced greatly if part of the system had been kept intact. Finally, why is a city of 7 million closely packed people dependent on such fragile electrical ties to the rest of the country for so many essential services?

The United States generates about one-third of the world's electricity. It is a pity that the country could not share more of it with New York on 13 July.

—WILLIAM D. METZ

Executive Office Reorganization: OSTP and CEQ Are Still In

The latest installment in the saga of science in the White House has concluded with the Office of Science and Technology Policy (OSTP) surviving the perils of reorganization. In the reorganization plan which President Carter sent

Congress on 15 July, OSTP is continued as a separate office in the Executive Office of the President (EOP), and OSTP's director, Frank Press, retains an inner-circle assignment as a special assistant to the President. Some of OSTP's statutory

functions will be shifted away under the plan, but the consensus is that the science office has held its own. There had been speculation that Carter might opt for merging OSTP into an enlarged policy-planning unit in his executive office.

More attention had been attracted by reports that the Council of Environmental Quality (CEQ) might be abolished or have some of its functions transferred outside the White House bureaucracy (*Science*, 15 July). The reorganization plan, however, retains CEQ intact and in place. Reports that CEQ was endangered had stimulated strong protests from environmental groups and from

CEQ partisans in Congress. The President is reported to have personally and pointedly made the decision on CEQ in the final stages of preparation of the reorganization measure. CEQ, however, is likely to undergo further scrutiny when the reorganizers come to the areas of energy and environment.

In moving to overhaul EOP, Carter was honoring a campaign pledge. As a candidate, he almost made a litany of a promise to improve the efficiency and effectiveness of government by a thoroughgoing reorganization. He said specifically that he would cut the White House staff by 30 percent. Carter apparently decided that reorganization, like charity, should begin at home, and set out to make the action on the EOP a model for what is to come.

The President's chief instrument is the Reorganization Act of 1977 signed on 6 April which empowers him to submit reorganization plans to Congress over the next 3 years. These plans take effect unless disapproved by Congress within 60 days. Congress has unvaryingly gone along with such plans.

With nothing less than the reorganization of the entire federal bureaucracy as the eventual aim, a fairly elaborate staff structure has been established to pursue what is called the "President's Reorganization Project." Carter himself is titular head of an executive committee on reorganization, and has an assistant for reorganization, Richard Pettigrew, who serves as administrative officer of the executive committee. The bulk of the staff work will be done by a group of civil servants and temporary employees lodged in the Office of Management and Budget (OMB).

The reorganization study on EOP was given a rush priority, and Atlanta banker A. D. Frazier was brought in to head the effort. While the impression has been that the group was dominated by "outsiders," that is, nonbureaucrats, its members are credited with acquiring a good grasp of how things actually work in Washington and with having sufficient political sensitivity to touch base with constituencies of EOP subdivisions on Capitol Hill and elsewhere.

Heading the working group which looked at OSTP, CEQ, and other offices which deal with science and technology was Frank Wilson, 31, who, before he joined Frazier on the EOP task force, managed an information systems group in the suburban Washington office of Informatics, Inc., a California-based company.

According to Wilson, the Frazier task force took an in-depth look at EOP and sought to identify which functions of the

office directly served the President and which didn't. He says his own group concluded that the legislation creating OSTP was essentially sound and that OSTP dealt with "crosscutting" issues with which the President is concerned. The group was also impressed with Press's qualifications and with congressional support for OSTP.

Wilson notes that they were also influ-

enced by Defense Secretary Harold Brown's arguments in favor of the office and science adviser Press. Wilson says the group recognizes that the usefulness of the science office is "really a personal matter between the President and the science adviser. If the President has confidence in the science adviser, he'll be willing to make use of him." And Carter, said Wilson, has confidence in Press. So

Briefing

Congress Kills Research Money for Smithsonian Scientists

Congress has followed through on its announced intent to tighten the reins on the Smithsonian Institution by eliminating the research awards program run by the privately incorporated Smithsonian Research Foundation (SRF). The foundation, whose primary function has been to administer the awards, is also to be abolished, as recommended by a General Accounting Office report early this year.

The Smithsonian requested \$450,000 for the program, all of which is for research by Smithsonian employees. Congress instead allocated \$110,000 to conclude ongoing research, and told the institution that if it wanted to continue the program it would have to find a new way to administer it.

The SRF was established in 1966 after it became illegal for the National Science Foundation (NSF) to make grants to federally employed scientists. By providing funds free of the fiscal year and Civil Service limitations attendant on appropriated funds, it has functioned as a "mini-NSF" within the institution, according to assistant secretary for science David Challinor.

But Congress has become increasingly disgruntled with the overly flexible way in which it thinks the Smithsonian has handled some of its public funds (*Science*, 20 May), and the SRF was apparently deemed the most prominent example of insufficient accountability to the legislature.

Challinor says it will be very difficult for Smithsonian scientists to "compete with their peers" if the awards program is abolished. The money is not much in relation to the institution's \$88-million appropriation, but he says the program has supplied 80 percent of the funds that go into basic research at the institution, and its loss would be a "violent blow." But he

believes a way will be found—perhaps by making some new arrangement with NSF—to get the money back, and that with some "imaginative administration" it will be possible to continue the program in a form satisfactory to all parties.

A Senate staffer says the easiest solution would be for the Smithsonian to ask Congress for a direct appropriation for research by its employees. But that would reintroduce the problems of inflexibility that the SRF was designed to circumvent.—C.H.

One Hand Lights Up While the Other Wags a Finger

Fans of preventive medicine have often called attention to the fact that the government on the one hand—through the Agriculture Department's tobacco subsidies—encourages tobacco consumption, while on the other hand it makes noises about the perils of smoking.

The perennial conflict bubbled into the news recently thanks to Health, Education, and Welfare (HEW) Secretary Joseph Califano. Califano, an ardent ex-smoker who refers to "Marlboro country" as "the cancer ward" made overtures to Agriculture Secretary Bob Bergland about rethinking tobacco subsidies which amount to about \$79 million a year.

Perhaps not surprisingly, Bergland wasn't interested. "The department cannot involve itself in the health aspects of tobacco," is the way he sees things.

Meanwhile, James Fallows, a young speechwriter and antismoker on President Carter's staff, wrote his chief a memo urging him to take a stand on tobacco subsidies. Carter sent the memo back with the scribbled notation: "I refuse to be drawn into this fruitless issue."

So, that, this year anyway, is that.

—C.H.

if not an honorary good ol' boy in the White House in-group, Press has passed the crucial first test.

The reorganization plan indicates that Press and OSTP will concentrate on advising the President, participating effectively in budget review activities, and providing "inputs" to other EOP organizations. To disencumber OSTP, so that it can focus these efforts, the plan provides that some of the statutory responsibilities embedded in the law creating OSTP be detached. The President's Committee on Science and Technology, which is charged with conducting a study of federal R & D activities, would have some of its functions moved under the reorganization umbrella. The remaining functions would be vested in the President for "redelegation," as would the function of the Intergovernmental Science, Engineering, and Technology Panel, which deal essentially with federal-state R & D activities. This means that the President could reallocate the functions inside the EOP, transfer them to outside agencies, or, in effect, consign them to limbo. The Federal Coordinating Council on Science and Technology (FCCST) is an interagency coordinating group with an enduring reputation for ineffectuality which the EOP reorganizers seem to think is justified. FCCST would be detached from OSTP and become a subcabinet-level advisory committee.

In total, seven of 19 existing EOP offices would be discontinued or their functions transferred. Four of these units are dormant and one, the Office of Drug Abuse Policy (ODAP), was activated only in March. ODAP was created to perform an advisory and coordinating role in federal drug matters (*Science*, 17 June). Its head, Peter G. Bourne, will continue as a special assistant to the President, and the reorganization staff thinks that ODAP's main functions can be performed by a smaller staff reporting to Bourne.

The Office of Telecommunications Policy has the largest staff—41—of the units slated to be actually discontinued. On paper, the office has very broad responsibilities for planning and coordination of functions ranging from making recommendations for internal federal communications policy to participating in deliberations on the structure of the communications industry. The plan calls for retention of a small staff within EOP to advise the President on key telecommunications issues and transfer of other functions to OMB and the Commerce Department.

Also on the list for abolition is the Domestic Council, but it would be a demise

in name only. A Domestic Policy Staff will carry on the functions of the council and is, in fact, cast in a starring role in the reorganization. A glaring weakness of the White House staff structure—a weakness noted by critics in the past and reemphasized by the reorganization team—has been in the formulation of domestic policy.

Orderly policy-making procedures for national security issues were, of necessity, developed after World War II, but domestic policy, except in some degree economic policy, was left by and large to the ad lib and ad hoc. The Domestic Council was President Nixon's bid to bring domestic policy under control.

A major point of the reorganization plan is to create a process parallel to the "Presidential Review Memorandum" process used for national security matters. As a briefing paper put it, "By building a more orderly system for collecting information and advice, the President can make sure that he will hear all the views he should—and hear them in time."

Several of the units which will be struck from the White House rolls, besides the Domestic Council and the Office of Telecommunications Policy, were products of the Nixon era. The extirpations do not seem to be simply a ritual catharsis, however. There is really nothing new about efforts to do over the White House staff so that it will better reflect a president's interests, background, and personal style.

The Kennedy and Johnson staffs operated rather in the senatorial fashion and were not highly structured. Nixon was influenced by corporation models and current business school theories. His own major essay at reorganization created not only the Domestic Council but amplified the old Bureau of Budget into the Office of Management and Budget, with the intention of asserting better control of the bureaucracy.

Ever since Roosevelt's day, presidents have followed the reorganization route in attempting to adapt the White House staff to increases in the size and complexity of government. The EOP itself was the product of a 1939 reorganization plan. For much of the period, the growth of the White House staff has been seen as a product of the contest between presidents and Congress for dominance. But more recently, as the federal bureaucracy came to be perceived as unwieldy and unresponsive, and especially as crisis management in rapidly developing international situations became necessary, the White House has been pushed toward becoming a power center cap-

able of direct action to influence events.

As a consequence, Congress and external pressure groups have sought to colonize the Executive Office with special purpose units which will benefit from the propinquity to the President and partake of his power. The difficulty, as such units multiply, is that they may not contribute to the President's effectiveness but simply contribute to an overload of analysis and often conflicting advice.

The pruning of the EOP units was done in the name of making the office work better for Carter. At a White House briefing held to announce dispatch of the measure to Congress, the President said he was "opposed to having large concentrations of people and authority in the White House." He also said that the reorganization was intended to "strengthen Cabinet government." Carter has insisted that he intends to establish closer liaison between himself and Cabinet officers and to give them greater policy initiative than they have had in the recent past.

Some skeptics, however, question Administration claims of substantial reductions in staff claimed as a result of the reorganization. The EOP, which includes OMB, is made up of 1,712 employees. Some 485 of these are in positions authorized for the so-called "White House staff," which includes the bulk of the units scheduled to be discontinued or to have their functions transferred. The reduction in this staff is put as 134 or 28 percent—very close to the 30 percent cut of the campaign pledge. The reduction in staff for the EOP at large is about 15 percent.

Those familiar with the work force attached to the President know that not all those on the roster fill authorized positions in the EOP. There is a long tradition of using "detailees" from federal agencies, consultants, and temporary help to swell the number of effectives. That is why old hands among reporters at the briefing responded to the emphasis on staff cuts by pursuing a line of questioning with OMB director Bert Lance which implied that they felt a numbers game was possibly being played.

The only reasonable way to settle that issue is to count heads in the EOP a year or so from now and to assess how well the staff is doing the job for the President. Given its stated aims, however, the reorganization plan would appear to make sense. It also has the tactical merit of not making changes which would seriously offend any major group of Carter's friends or antagonists. Early reactions from Capitol Hill indicate that real opposition is unlikely.—JOHN WALSH