

Power on a knife's edge

This summer will be a summer of ifs for United States power systems. If fossil fuel supplies hold up, if there are no unusual hot spells and if there are no mechanical breakdowns, then major electric power disruptions can be avoided.

The situation is at best precarious. Reports filed with the Federal Power Commission by the nation's electric utilities indicate, says FPC, that "Some sections of the country may experience tight electric power supply situations this summer with potential system-wide and company-wide problems in every region."

The problem is one of electricity reserves, a reserve being the difference between capacity and peak load. The FPC considers a 15 to 20 percent reserve acceptable and is concerned that many places are below that level already with the hot summer months still to come.

The situation is not uniform across the country; the potential trouble areas are in the east and southeast with the exception of New England and Florida, and in the cities of Chicago, St. Louis, Minneapolis and St. Paul. In general, there are no serious worries about the central and western regions of the country.

New York state has reserves of 18 percent, but the New York City area is down to a 14.5 percent reserve. New York City's Consolidated Edison expects to go as high as 17 percent, which, says one official, "is not comfortable but is better than last year." New York City's Achilles' heel is a 1,000-megawatt unit at Ravenswood. If that generator fails for any reason, all reserves would be wiped out.

The states of Pennsylvania, New Jersey, Maryland and Delaware, plus Washington, D.C., have another problem. They are part of a single power pool whose reserves are down to 9.3 percent. Three of its large units have had either start-up or operating troubles. Should these three fail, the area would have no reserves.

The tight reserve story is repeated in the power pool that feeds the Carolinas and Virginia. That pool's reserves are down to 6.5 percent, with one unit accounting for half of those reserves.

Although the central United States is in reasonably good condition, Chicago is a potentially critical spot, with reserves scraping the 5.5 percent mark. That city is counting heavily on its Dresden 2 nuclear power plant to go into operation in time to beat the peak load periods in July and August. Commonwealth Edison is shooting for com-

mercial operation in June, but the first few months of operation will be a period of adolescence, and confidence is not high.

St. Louis, Minneapolis and St. Paul are living the most dangerously; they have no reserves at all although St. Louis could have some reserves if its Labadie fossil fuel unit goes on-line in June as scheduled. The Twin Cities of Minneapolis and St. Paul were counting on the Monticello nuclear plant (SN: 4/25, p. 406) but it has had legal troubles and is not yet completed. Monticello's earliest start-up date would be late summer, and full power is some time farther off.

The reason for this tightrope situation is lack of planning for the high peak loads. "The utilities didn't anticipate the growth," says Stewart P. Crum, chief of the FPC's division of electric resources and requirements. "Peak load had been growing about nine percent during the past summers. It takes four or five years to get a fossil-fired generating station on line, and when planning, they didn't anticipate this."

One of the chief culprits is air conditioning. Before it became so popular, the peak load time occurred in the winter, when night falls earlier and people turn lights on sooner. With the advent of air conditioning, peak load time shifted to the summer.

Whatever the reason, the big question now is what can be done to stave off power failures this summer. Of primary importance is supplying enough coal to the utilities, since it is used for most thermal electric production. The coal shortage developed because of the more stringent mining regulations of the 1969 Federal Coal Mine Health and Safety Act (SN: 12/27, p. 592), a labor shortage, insufficient railroad coal cars and exports of coal abroad.

The Government will undertake various corrective steps. For example, the Interior Department will concentrate on technical assistance programs to mines so they can meet Federal requirements with minimal disruption of coal production; the Interstate Commerce Commission will streamline procedures so hopper cars can be moved across state lines as priorities dictate; civilian installations will conserve electricity where possible and the Atomic Energy Commission will curtail the enriched uranium production of its gaseous diffusion plants, which use coal. (Ironically, some uranium is destined for future use in nuclear power plants.) In addition, for oil-fired plants, Washington is exploring the relaxation of oil import restrictions.

On a regional level, utilities that are part of a grid system have arrangements to purchase electricity from neighboring systems. If that fails, they will cut the power load in their own facilities. After that, they will be forced

to go to three to five percent voltage reductions, which most appliances should be able to survive.

"These steps . . . should be successful in reducing or eliminating brownouts during the coming months," says George A. Lincoln, director of the Office of Emergency Preparedness.

He is seconded by Crum, who says, "I don't see any real serious situation this summer. I don't think it's a critical situation." The hope is that they are not just whistling in the dark.

Apparently, the situation this summer will be repeated well into the 1970's. By the end of 1973, 33 fossil-fuel and 28 nuclear plants are scheduled to go on-line, which should meet expected power demands. But based on past experience, the schedule probably will not be met. Construction lags and stiffening opposition from environmentalists will cause the utilities to fall short of their goals. In fact, a study by the Federal Power Commission on Consolidated Edison operations in New York foresees this summer's tight supply situation repeated in 1974 and 1977. □

OIL ASHORE

Mystery in the Gulf

Two weeks ago, coagulated balls of oily substances began washing up on the Gulf Coast all the way from Florida to Texas. Ranging in size from two inches to a foot across, the tar balls continued to wash ashore this week as a search for their source got under way.

Estimates so far indicate 43 to 300 pounds of the balls—sometimes associated with a thick brown scum—per mile of shoreline. Near Beaumont, Tex., there are 3,800 pounds per mile for a ten-mile stretch.

The sources of the tar balls can only be guessed at. Preliminary analyses indicate a variety of unrefined and refined products, depending on the location. Some of the balls harden on exposure to air; others soften. Barnacles and algae were reported growing on some found near Rockport, Tex., indicating some time spent in the sea, and all of them appear to be fairly extensively weathered.

There has been none of the gross damage to wildlife that occurs when fresh oil sweeps ashore. Texas and Louisiana state officials have therefore reported there will be no long-term or short-term ecological damage. But scientists are skeptical of oil-state evaluations. "Oil talks down there," comments Dr. Richard H. Backus, marine biologist at Woods Hole Oceanographic Institution. "There could be all sorts of nonapparent effects."

The subtle ecological effects are still

unclear. Dr. Max Blumer of Woods Hole says all petroleum products and fractions—except certain highly pure materials—are toxic. Especially so are the aromatic hydrocarbons, which have been implicated as carcinogens. Oil companies had assumed the volatile aromatics evaporate from spilled oil quickly, but Dr. Blumer's analyses of weathered tar balls show this is not so (SN: 3/14, p. 263). Says Dr. Howard Sanders, also of Woods Hole: "There is no doubt the aromatics are highly lethal. But everything to do with the long-term effects of oil spills is still very superficial. We need to look at this very critically."

Analysis of the current Gulf Coast tar balls at the Federal Water Quality Administration laboratory in Athens, Ga., has been qualitative, aimed at identifying the sources rather than at assessing toxicity. Indications so far are that the balls found on the Louisiana coast are similar to the Chevron oil—which, incidentally, is high in lighter fractions, including the aromatics—but there is not even a tentative identification of the sources of the oil found in Florida and Texas.

ALCOHOLISM

A try at treatment

In 1945 a Georgia court declared that alcoholism is a disease and not a crime. Since that time numerous court decisions and major reports by a U.S. Crime Commission and the Federal Department of Health, Education, and Welfare have expressed similar opinions.

But even sympathetic law enforcement officials have been stymied in efforts to take the ruling seriously by the lack of treatment and rehabilitative facilities to handle alcoholics. In short, there has been no place for a drunk but jail.

An effort to stimulate some action toward providing rehabilitative facilities and attitudes is embodied in legislation now before the Senate, sponsored by Sens. Harold Hughes (D-Iowa), Jacob Javits (R-N.Y.) and Frank Moss (D-Utah).

The bill would provide health benefits for alcoholic Federal employees and emergency medical services for alcoholic Federal offenders before they are processed for any criminal actions.

Hearings on the bill were finished last week, and support appears to be widespread. But the bill's \$75 million price tag will make implementation chancy.

Under the bill, parole boards would be required to take cognizance of the parolee's illness. This would be coupled with alcoholism treatment services in the Federal correctional institutions.

Recognizing that the alcoholics'

Some samples of tar balls from near Pensacola, Fla., appear to contain remnants of the detergents used by oil companies to disperse oil into the water column, a practice frowned on by most ecologists because of the possible toxicity of the dispersants.

Under earlier law, FWQA could allow oil companies to use the dispersants if safety was involved; they were used in large quantities during the Louisiana spill when there was danger of fire.

But FWQA in the past has operated under a simple rule of thumb which said that when dispersants had to be used they could be used only in quantities that would create no more than a five-parts-per-million concentration in the first three feet of the water column. This was a gross approach since the companies often refused to tell FWQA what the chemical makeup of the detergents was. But under the water law signed by the President April 3, chemical composition will have to be revealed to FWQA. Standard toxicity tests will be required for all dispersants, although so far no tests for long-term ecological damage are being developed. □

problems with the law are only the tip of a complex iceberg that involves an estimated 9 million alcoholics in the United States, the legislation focuses on the preventive and rehabilitative aspects of the alcoholism problem.

It proposes the establishment of a model Federal program for the prevention and treatment of alcoholism among Federal employees, including members and veterans of the Armed Forces. A major part of the program will be aimed at keeping alcoholics in productive employment while they are being treated. The Federal model is expected to encourage similar programs on the state and local level and in industry.

Under the legislation, health and disability plans for Federal employees would cover alcoholism as they do other health problems. At present alcoholics often are not eligible because they are defined as behavior problems; in order for them to qualify for benefits, their physician must indicate that the illness is other than alcoholism to qualify them for treatment.

The bill also provides for public education on the causes and effects of, and treatment for, alcoholism. The education would be directed toward law enforcement officials, members of the judicial system, school children and parents. The educational material would reflect social, geographic and economic variables relating to alcohol abuse. □

OIL SPILL

Mop-up off Nova Scotia

No single method of attack on oil spills has yet proved adequate. Even when all possible methods are used there is sometimes serious damage before oil can be removed from ocean or shoreline environments (see p. 550). But a Canadian experience indicates that a concerted attack, using all possible resources, can eliminate the worst damage.

Dr. Patrick McTaggart-Cowan, executive director of the Science Council of Canada, took charge personally of cleanup efforts in Chedabucto Bay, Nova Scotia, after a tanker loaded with heavy bunker oil went aground there Feb. 4. That situation, he reports, is now under control.

The first problem was to remove 1.5 million gallons of viscous oil that was leaking from the sunken stern section. Valves were fitted to the hold of the ship and hoses attached. But the oil was so thick it would not flow, and it was necessary to pipe steam into the hull to heat and thin it. By April 11, the oil had been pumped out and transported by barge to storage installations in Halifax.

Removal of oil slicks from the surface of the bay—a possible source of damage to lobster and other fisheries—was accomplished by means of a terry-cloth conveyor installed on the front of a small scow. The terry cloth absorbed the oil, which was then squeezed out for collection.

Cleaning beaches required a grosser approach. Men working with bulldozers and shovels scooped off oil-soaked layers of sand. Wharves and jetties were cleaned by steam jets, and the oil that washed off into the sea was absorbed by floating peat moss that was then carted off.

McTaggart-Cowan's team is now looking for a nontoxic chemical to cleanse boulders and rocks; oil on the rocks around the bay resembles a ring on a bathtub.

The cleanup effort, which was carried on by Federal, oil company and armed services personnel, prevented severe damage to all fisheries, although there was probably some damage to the area's clam population. Beaches will be in shape for the summer tourist season; oil residues on rocks and elsewhere will gradually be cleaned by natural forces.

Cost estimates for the cleanup are not yet available. Canada does not have a law, such as that passed in the United States this year (SN: 4/11, p. 468), which assigns liability for cleanup to the perpetrator of a spill, and so far most of the expense at Chedabucto Bay has been borne by the Federal Government. □