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## How U.S. nuclear capacity was sabotaged

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*In this second part of a series, Marsha Freeman details the sabotage of nuclear power and the financial attack on utilities, which jeopardizes whole sections of the nation's electricity grid.*

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Today, the nation's electric utilities have been stretched to the limit in trying to continue to provide reliable electric power to industry and consumers. So far this summer, many companies have had to institute voltage reductions and interrupt service to customers, because of higher-than-forecast peak demand. As most utilities do not expect to reach their peak demand for the year until August, who knows what is still in store for the summer?

In the future, the situation will only get worse, as less new capacity than needed is put into service, and reliability and redundancy suffer.

Since the mid-1970s, the best energy technology available to utilities has been under a full-scale attack by zero-growth "environmentalists," who not only demonstrated to stop the construction of power plants, but also *became* the regulators and politicians, who are now in a position to use the legal system to carry out their agenda for a "post-industrial society." The sabotage of nuclear power in the United States has meant that over 100,000 megawatts (MW) of new capacity that had been planned was not put on line over the past decade.

But the real consequence of the sabotage of nuclear power is that it cut to the quick the largest source of new baseload power capacity, which was to be the bulk of the *growth* potential for the utility industry. It is comparable to cutting off the top leaves of a tree, where the fastest growth takes place, and expecting the tree somehow to grow from its sides.

### The sabotage of nuclear

In the 1970s, the amount of electricity produced, by nu-

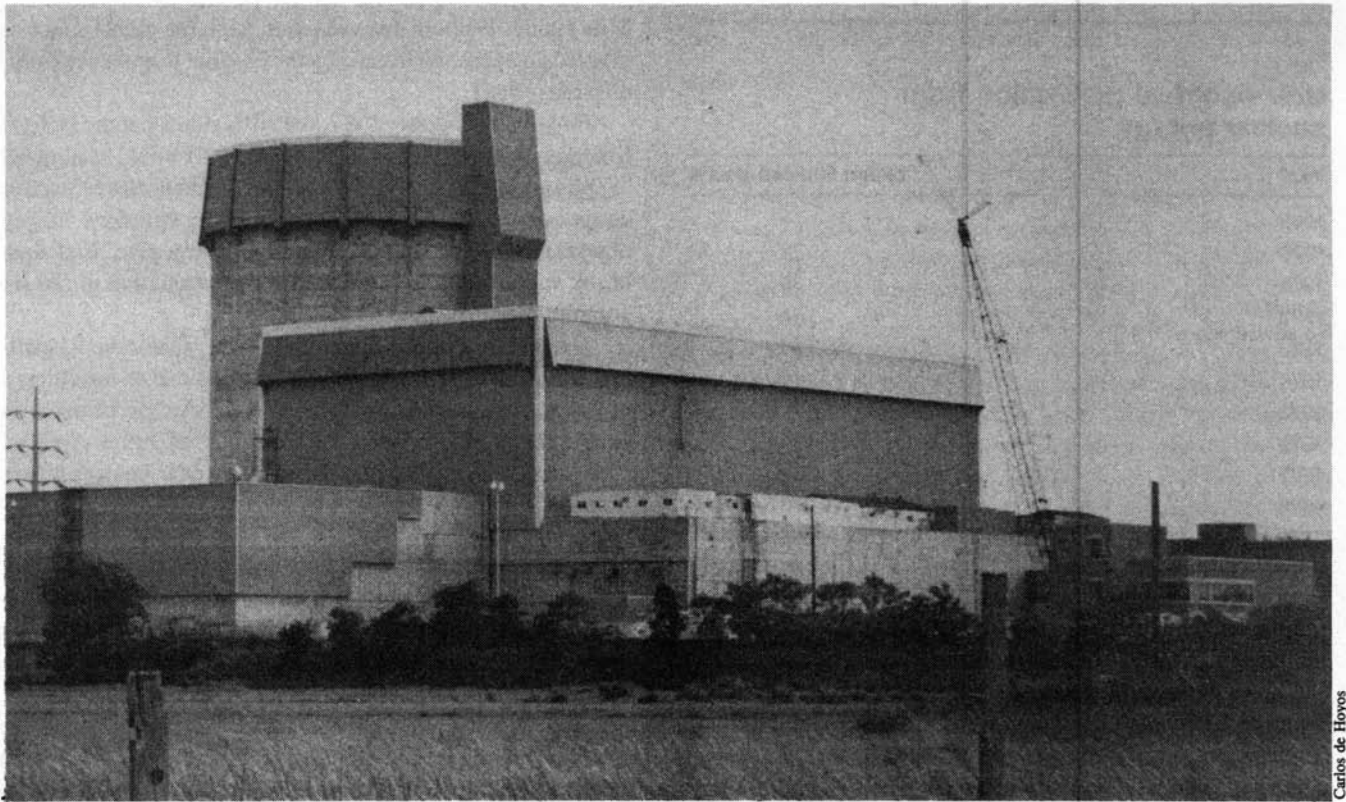
clear plants, in billion kilowatt-hours, doubled approximately *every two year* (see **Table 1**). From 1970 to 1979, electricity produced by burning coal, which had the second highest growth rate, increased by only 35%. But since 1977, the rate of nuclear-produced electricity has not even doubled once, in more than 10 years.

Currently, the United States has 109 operating nuclear power plants. While the bulk of these plants was put on line in the last 15 years, a nearly equal number of nuclear plants was *canceled* by utilities (see **Table 2**).

The attack on nuclear energy did not start as some hysterical response by the American public to the media hype after the accident at the Three Mile Island plant in Pennsylvania in 1979, although rulings by the Nuclear Regulatory Commission after Three Mile Island did cause a shutdown of power plants and a decline in nuclear-produced electric power.

As reflected in **Table 2**, the anti-growth movement was given an opening to gear up its attack on the nuclear industry soon after the 1973 Mideast war and subsequent oil embargo. The entire utility industry was thrown for a loop in 1974, when skyrocketing fuel prices caused a dramatic cutback in American energy consumption. For the first time, electric generation grew less than 1% compared to the previous year.

In 1976, for the first time, propositions were placed on the ballot to stop the construction of nuclear power plants, (see **Table 3**). Though no such proposal has ever been passed by the electorate (not even in Sacramento, where environmentalists have tried 14 times to close an operating plant), the power industry was thrown on the defensive in a battle it



Carlos de Hoyos

*The new \$5.2 billion Shoreham nuclear facility on Long Island, New York, never put into operation. If New York Gov. Mario Cuomo has his way, he will be the first political leader since Ayatollah Khomeini to oversee the destruction of a nuclear plant.*

is, by and large, still losing.

Fed by the contraction of the overall economy during the Nixon "Phase I-II" period of wage-price controls in 1971, the cutbacks in research and development efforts such as the space program, that are economic drivers, and the general malaise of the period, the neo-Malthusians known as "environmentalists" were created top down by the Council on Foreign Relations (CFR) and other Eastern Establishment policymakers to champion the post-industrial society that they wanted as the future of the nation.

In addition to the small number of "troops" in the streets seen nightly on television, the industry came under attack by the CFR financial interests who believed illegal drug money, real estate speculation, and "service industries" were the more desirable forms of economic activity. None of those "industries" requires very much electrical energy.

### **Financial Waterloo: the case of Seabrook**

For the first time in the history of this nation, the investment of national resources to sustain and develop the infrastructure needed for economic growth has become suspect by regulators and financial interests over the past 10 years.

An excellent, if enraging, example of how the very existence of the electric utilities has been placed into jeopardy is the case of the Public Service Company of New Ham-

phshire, the major investor in the Seabrook nuclear power plant in that state, holding 35.6% of the shares in the project.

In 1976, ground was broken to build the two nuclear units at Seabrook, a blue collar beach area of New Hampshire. The estimated cost of the two 1,150 MW units was less than \$1 billion at that time. However, in 1979, the state legislature of New Hampshire passed a law prohibiting the utility from including the cost of building the plants in its rate base. Because of this law, the rates for the utility have been set as if Public Service had invested only \$600 million in the plant, though its share has equaled more than \$2.9 billion.

Prevented from raising the money from its ratepayers to complete the project, the utility was forced to resort to the Wall Street bond market to raise the funds. As interest rates soared, the projected cost of one power plant (the second unit was canceled) grew to \$5.4 billion. As environmentalist obstruction delayed startup, the cost of keeping the plant at-ready for operation kept growing at a rate of about \$50 million per month. The costs were "swollen by financing charges," reported the *Wall Street Journal*.

Almost four years ago, when Public Service first faced financial problems, construction on the units had been brought to a halt. The company staved off bankruptcy by suspending dividends on stocks and selling junk bonds. In May 1987, Public Service had to go back to the financial markets to

TABLE 1

**U.S. electrical generation from nuclear energy**

Year	billion kilowatt-hours
1969	14
1970	22
1971	38
1972	54
1973	83
1974	114
1975	173
1976	191
1977	251
1978	276
1979	255
1980	251
1985	384
1987	455

Source: U.S. Department of Energy

borrow another \$150 million to keep it afloat, as it waited for Seabrook to start producing electricity, and revenue.

Only \$100 million of the needed money was raised, at a staggering interest rate 9% over the prime rate, plus one-quarter percent for each month the loan is outstanding. That translated into a rate 13% above prime per year. Even the *New York Times* commented that this was a "rate high even by the standards of credit card companies." One could call it usury.

By the fall of 1987, the *Wall Street Journal* referred to Public Service as "the Brazil of utilities"; it could not meet the interest payments on its debt, and had to keep borrowing to try to do so. On Oct. 15, the utility failed to pay \$37 million in interest it owed the Midlantic National Bank in New Jersey. In December, the New York Stock Exchange suspended trading in Public Service stocks and bonds for a brief period.

Finally, with nowhere else to go, Public Service Company became the first utility since the Depression to file for Chapter 11 protection in January of this year. Holding \$2.7 billion in assets, it was the fourth largest bankruptcy in the history of the United States.

Meanwhile, Massachusetts Gov. Michael Dukakis and friends were trying to make sure the Seabrook plant would *never* operate. After the Chernobyl accident in the Soviet Union in April 1986, just as Seabrook was completed and ready to begin operating, the governor decided to halt all work his staff was doing in preparing an evacuation plan for the six Massachusetts communities that are within the 10-mile "evacuation radius" established as necessary after Three

Mile Island. Without an evacuation plan, the plant cannot be granted an operating license by the Nuclear Regulatory Commission (NRC).

Finally, by October 1987, the NRC ruled that the Federal Emergency Management Agency (FEMA) would be allowed to approve evacuation plans when local authorities refused to cooperate. In March of this year, FEMA withdrew its key objection to New Hampshire's emergency plan, and Seabrook submitted its own plans for the evacuation of the six communities in Massachusetts.

Seabrook will hopefully come into service soon. Regardless, the financial penalty put on the utility and on the citizens of the region, who do not have enough electric power, has been extreme. Looking at the Seabrook experience helped convince other utilities not to start any new nuclear power projects.

### Shoreham: a political football

Some people have made political careers out of sabotaging nuclear energy. Some people think that by gaining access to the highest public office in the land, they will be in an even better position to bring about a new Dark Age.

Like would-be President Dukakis, New York Gov. Mario Cuomo has made his mark by stating that the Shoreham nuclear plant on Long Island will never produce power. This spring, Cuomo proposed that Shoreham be sold by the Long Island Lighting Company (Lilco) to some government agency for \$1, and then torn down. It has been estimated that the decommissioning of the plant would cost \$444 million.

To finance this, Lilco would get a 5% rate increase every year for the next decade, plus a \$2.5 million tax credit, pending IRS approval. Some citizens on Long Island are considering suing the government for misuse of funds. In response to this proposal, which would cost taxpayers a fortune, the legislature of the State of New York voted in July to put the plan on hold, not wanting to enrage taxpayers in an election year.

Due to constantly changing regulatory requirements and years of "intervenor" challenges to the plant, it has now taken *twice as long to build Shoreham as it took to build the Panama Canal*. The cost has escalated eighty-fold, and though ready to operate since 1984, the plant has only been at 5% power since 1985.

Shoreham has become a national political football, because crucial constitutional and national security issues are involved, as they are in the Seabrook case. Dukakis, therefore, has chosen to take a stand on Shoreham. During an April campaign swing through New York prior to the June primary, Dukakis promised that he would block FEMA from cooperating with LILCO on developing an evacuation plan for the plant.

One irony of the Shoreham situation, is that in the *1987 Annual Report* of the New York Power Authority, it is reported that the legislature passed a ruling that allows expand-

ed sales of low-cost electricity from the Fitzpatrick nuclear plant near Oswego, New York to other parts of the state. This is expected to create or protect about 15,000 jobs in the state, that would be lost due to otherwise exorbitant electric rates.

On June 28, Dukakis wrote a letter to President Reagan objecting to an executive order Reagan has been considering, to put the responsibility for bringing nuclear plants on line back in the hands of the federal government, where it belongs. Dukakis stated that the authority for protecting the "health and safety" of citizens rests with states' rights, and that he and other elected officials had the right to stop multi-state nuclear projects.

In response to this nonsense, Scientists and Engineers for Secure Energy (SESE) wrote a letter to the President, dated July 12, stating, "The Atomic Energy Act has given *exclusive* authority and responsibility to make safety judgments to the *federal* Nuclear Regulatory Commission, as the U.S. Supreme Court has repeatedly reaffirmed."

The letter also reminds the President that the proposal by a Massachusetts congressman last year to give states a role in making these judgments "was resoundingly defeated (by

TABLE 2

**Orders and cancellations of nuclear power plants**

Year	New orders placed	Plants cancelled
1966	20	0
1967	31	0
1968	16	0
1969	7	0
1970	14	0
1971	21	0
1972	38	0
1973	41	0
1974	26	4
1975	4	11
1976	3	2
1977	4	9
1978	2	13
1979	0	8
1980	0	16
1981	0	6
1982	0	18
1983	0	6
1984	0	8
1985	0	0
1986	0	3
1987	0	0
		TOTAL 104

Source: U.S. Council on Energy Awareness

TABLE 3

**State and local referendums on nuclear plants**

Year	Electorate	% favor nuclear	Year	Electorate	% favor nuclear
1976	California	67-33	1980	Maine	60-40
	Arizona	70-30		Missouri	61-39
	Colorado	71-29	1982	Maine	55-45
	Montana	58-42	1984	Missouri	67-33
	Oregon	58-42	1986	Oregon	64-36
	Ohio	68-32	1987	Maine	59-41
	Washington	67-33	1988	Sacramento	52-48

Source: U.S. Council for Energy Awareness

over 100 votes) in August 1987." Signers to the letter included Dr. Edward Teller, and former Washington state governor Dr. Dixy Lee Ray.

On the technical issue of evacuating citizens from the site of either the Shoreham or Seabrook plants, the SESE reports, "The Soviets evacuated 48,000 people over a two-lane road in two hours without a preconceived or practiced plan."

And on the question of how realistic it is that a plan would ever have to be used, the letter states, "The 'risk' of an accident occurring at Seabrook which would cause a single fatality among the public is less than one in a million, and perhaps less than one in a hundred million."

It continued, "If such such levels of risk are unacceptable to the governor, then to be consistent, he should try to ban airplanes, automobiles, and cigarettes; their fatality risks are several orders of magnitude greater."

Moreover, "The event which he appears to postulate at Seabrook, while conceivably possible, is less likely than a full 747 aircraft crashing into [Boston's baseball stadium] Fenway Park during a sold-out baseball game; in that event, the loss of life at Fenway would be immense and, unlike Seabrook, no evacuation would be possible."

Clearly, there is no place in this nation for an energy plan based on irrationality, especially when the consequences are as serious as they are in this case. Yet, that is what Michael Dukakis has promised us, if elected.

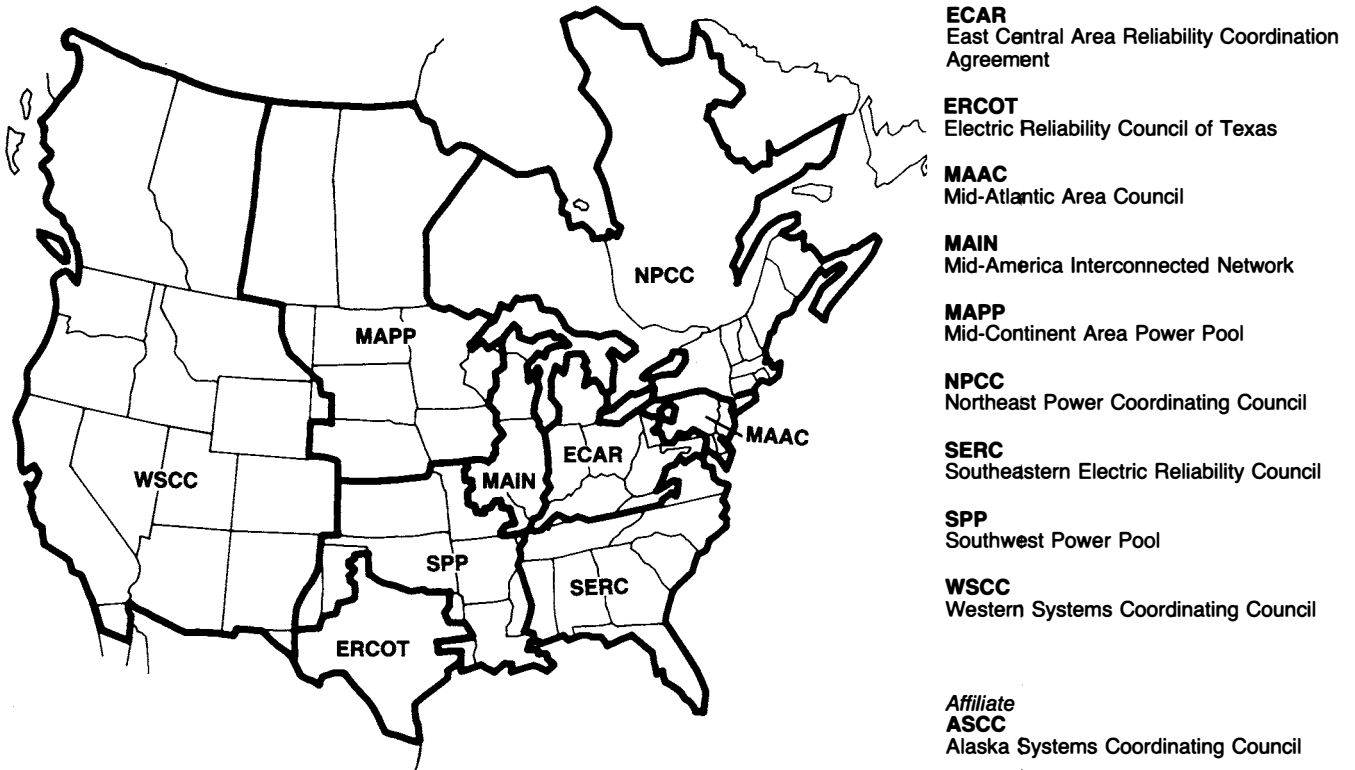
Energy Secretary John Herrington on June 13 described the situation in New York as "shortsighted obstructionism." Without Shoreham, he said, New Yorkers face "a future of continued brownouts and higher electric bills for people who already have the highest bills in the nation."

Chiming in, the *New York Post* stated recently, "There is . . . something almost flaky about junking a newly built \$5.3 billion facility before it has so much as supplied a single volt of electricity to Long Island consumers."

Trying to set a record for new heights of hypocrisy, the *New York Times*, which has campaigned against nuclear en-

FIGURE 1

**North American Electric Reliability Council**



Source: North American Electric Reliability Council

ergy for years, stated on May 21 that, before new capacity were brought on line, if Shoreham is scrapped, “the island must live with razor-thin capacity margins. At best, that will mean summer ‘brownouts,’ voltage reductions that dim lights and slow appliances. More likely, it will mean brief outages, or even planned rolling blackouts that deny power to individual communities for a few hours each week.”

On May 31, the *Wall Street Journal* published an editorial titled, “Lights Out.” They summarize the situation as follows: “The U.S. can look forward to brownouts and, possibly, retarded industrial development. Maybe Mike Dukakis and Mario Cuomo will be able to explain this all away if the lights start flickering in July or August.” Maybe the citizens of the nation will get fed up with their new Third World living conditions, and boot these fellows out of office.

**Regulatory sabotage**

The grossest level of regulatory malfeasance in the demise of nuclear energy has certainly been on the federal level, where anti-nuclear ideologues were brought in to the NRC in Washington, to “regulate” the industry out of existence. This

has been done by closing operating power plants for the smallest of regulatory violations, giving license to intervenors to tie up construction in the courts for years, and generally renegeing on its responsibility under the 1954 Atomic Energy Act to carry out a mandate to develop commercial nuclear power in the United States.

State regulatory authorities have also gotten into the act, and created yet another hurdle for the industry—getting their new capacity paid for. As the NRC allowed intervenors and nit-picking regulations to multiply the cost of power plants, the public utility commissions (PUCs), too, went on the rampage.

For years, rate increases (or decreases) were decided on the grounds of what was needed to add new capacity, while providing a return on investment, which is regulated by law. More recently, PUCs have decided to add other “criteria” to their decision-making process. Some PUCs have charged utilities with “mismanagement” as costs escalated. To determine whether or not a utility used “good judgment” in deciding to build a plant at all, and how great a rate increase it “deserves,” the PUCs compare the cost of electricity from

the new plant to other "alternatives."

The problem is that, in some cases, the comparison has been with lower cost alternatives that were *not even available* at the time a commitment was made to the project. Who knew 10 years ago that oil would go down to \$15 a barrel?

PUCs have also disallowed or deferred rate increases based on the regulators' "perception" of current capacity needs. Of course, when the utility made the decision to build the power plant, perhaps a decade ago, the rate of growth in demand could have been more than double what it is today!

One year ago, the Niagara Mohawk Power Corporation in New York State slashed its dividend rate 42% and took a \$755 million write-off on nuclear plant costs, which the utility is not allowed to charge to ratepayers. Before that, it had frozen the salaries of 2,500 employees, and is still shrinking its workforce and reducing construction.

The reason is that a cap was put on how much of the cost for the two 1,080 MW-each Nine Mile Point nuclear plants can be passed on to ratepayers. Before 1987, the utility could have spread the nuclear plant write-off over a 40-year period, but it was forced to take it in one year because of new "accounting rules"!

How NRC rulings can throw local utilities into financial chaos is also seen in the Philadelphia Electric Company case. In March 1987, the utility's Peach Bottom plant was shut down by the NRC due to "serious personnel problems." One plant operator was found asleep at the console!

Since then, the plant has not operated, costing Philadelphia Electric, and other utilities that rely on Peach Bottom, millions of dollars per month to buy replacement power, while they get the plant ready to reopen. On the excuse that the plant is not operating, the Pennsylvania Public Utility Commission ordered the utility to take the cost of the plant out of their rate base, even though the temporary closure of Peach Bottom will not shorten the plant's service life. According to the *Wall Street Journal*, this is the first time a utility has been forced to do this, and has cut the utility's rates by \$37 million, which wiped out its 14.75% annual return on equity investment in the plant.

Since Public Service Gas & Electric (PSE&G) of New Jersey is a part owner of the Peach Bottom plant, the New Jersey Board of Public Utilities has also gotten into the act. They have stated that they may not allow PSE&G to continue recovering from its ratepayers either the utility's investment in the plant or its share of the plant's operating and maintenance costs—a potential \$140-150 million annual loss.

In addition, New Jersey has "performance standards" which penalize a utility that does not keep its units on line an average of 60% of the time. By conveniently ignoring the fact that it was the NRC, and not the operating utility, that shut down the power plant, the regulatory authority's application of this rule has resulted in a loss of \$17 million in rate increases this year.

In response to the financial fallout from regulatory abuse,

Daniel Scotto, utility bond analyst for L.F. Rothschild and Company, has recommended that investors "reduce their positions" in PSE&G. Scott has downgraded the bond rating of another utility affected by the Peach Bottom shutdown—Delmarva—from double A to double A-minus.

In an ironic case, Commonwealth Edison (CE) of Illinois, the most heavily nuclear utility in the country, has been told by state Commerce Commission auditors that it spent "\$400 million too much" on the Byron 2 nuclear plant. The Commission complained that "poor management" at CE led it to recommend that CE reduce its rates by \$343.1 million, instead of being granted the \$1.4 billion increase it had requested.

While being charged with malfeasance and having its rate base undercut and its decisions questioned, Commonwealth Edison went on the offensive. It took out a full-page ad in the *Chicago Tribune* on June 26, to set the record straight on the need for nuclear power. The add stated, "The 16,138,000 kilowatts you weren't supposed to need until 2005, were supplied last Tuesday with the help of two new power plants we weren't supposed to need until 2005." So much for "poor management."

This spring, on the second anniversary of Chernobyl, the Soviets announced that the share of nuclear energy in their energy output would double by the year 2000. Only in the West do the Soviets support "environmentalism."

How long will citizens allow their electric-generating and supply system to be torn apart by irrationalists? If shortages tend to spur people to action, perhaps not long.

## The regional picture

**Figure 1** is a map of the way the nation is divided by the North American Electric Reliability Council (NERC) into nine geographic regions. The NERC also incorporates the appropriate areas of Canada in its continental reliability analysis.

• Like every region, the **Northeast Power Coordinating Council (NPCC)** is betting that a low growth rate over the next 10 years will allow it to avoid any major problems in the future. But NPCC spokesman John Kurta commented at the end of July, "The summer isn't over yet. Since we still have the dog days of August, we may have some real problems." NPCC covers utilities that service the states of New York, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, and Connecticut. According to NERC's 1987 reliability report, "In 1987, several areas reached peak demands that were not forecast to occur until the 1990s." There is an "increasing concern regarding future electric supplies in the region," NERC warned.

To make clear how tenuous future supplies look: The only major utility-owned capacity scheduled to come into service in the next 10 years in the region is Seabrook! The 300-MW Niagara expansion project, scheduled for operation in May 1994, has been delayed one year, and the Prattsville

1,000-MW pumped storage facility, long delayed by environmental issues, has been canceled.

The regional reliability council states in their material, that "if demand management programs prove less successful than anticipated, or if non-utility or utility-owned generation does not meet projections, an inadequate balance of capacity resources versus load could quickly develop."

Projections have been that the average annual growth in energy between 1987-96 would be 1.6%. So far, on July 11, the region reached an all-time peak that was between 3-5% over last year. Mr. Kurta stated to this reporter that the forecasts are "ridiculously low."

In April, New Hampshire Gov. John Sununu stated that the utilities have been inclined to be "quickly responsive to suggestions by political figures and regulators that there will be no growth in electric demand in the Northeast." For the past six years, he said, the utilities have predicted a 1% annual growth rate, and it has been between 4-5%. "We in the Northeast have now consumed the growth slack that it was assured would be available well into the year 2000."

As for the capacity the region is counting on from small, non-utility producers, Kurta explained that small, upstate New York hydroelectric projects are risky, considering the weather, and the investors are "taking a gamble." Unfortunately, due to the sabotage of nuclear power plants, New Englanders have taken a gamble with the future of their entire utility system.

- **The East Central Area Reliability (ECAR)** region is comprised of the former industrial heartland of the United States, encompassing Michigan, Indiana, western Pennsylvania, Ohio, Kentucky, West Virginia, and parts of Virginia and Maryland. The region produces more than 80% of its electricity by burning coal.

For the past three years, the region has recorded increases in peak demand in the 3-5% range, well above the forecast rate, which had been *negative*. Over the next 10 years, the capacity margin of the region is projected to fall from 26 to 21%, as little new capacity is planned to come into service.

The major potential disruption in future power delivery in ECAR is acid rain legislation being considered in Congress. It is estimated by the reliability council that more stringent environmental regulations could leave ECAR without 9,600 MW of existing coal capacity, as older plants would be shut rather than modified. Another 2,400 MW would be lost because the pollution control equipment itself uses energy and causes increased unscheduled outages. The region as a whole is not planning to add much new capacity over the next decade.

As one of the oldest industrial regions of the country, ECAR will have 14% of its capacity over the age of 40 by the year 1996, and 27% will be more than 30 years old. Plans are to extend the lifetimes of these old facilities, by pouring money into buying new turbine blades, rewind generators,

etc. Though these units are counted in the available capacity megawattage, like any other plant, ECAR manager John Hand pointed out, these older units will have a higher rate of forced outages, and "will not have the same reliability as 20-year old plants."

What would happen if the region's growth rate continued to outstrip projected rates and capacity growth? Hand stated, and every other regional administrator contacted concurred, that the United States has already lost the ability to manufacture some critical elements for the electrical industry, such as interrupters and high-voltage circuit breakers, and that other equipment such as large steam turbines, are becoming a thing of the past.

- **The Mid-Atlantic Area Council (MAAC)** which includes eastern Pennsylvania, New Jersey, Delaware, and part of Maryland is the area suffering from the Peach Bottom closing. For the fifth consecutive year, the region has experienced record peaks in summer demand, with 1987 registering a 7.9% rise over 1986. As a matter of fact, the peak demand forecasts for 1988 and 1989 turned out to be lower than the *actual* peak demand in 1987!

Over the next decade, the region is expecting fully *half* of its planned new capacity to come from non-utility generation, which is one of the highest rates in the country. According to MAAC manager Robert Woodward, the council is counting this risky capacity in its projections, "because we have to."

MAAC has suffered from the obstructionism rampant in completing new transmission lines, and the 243-mile Baltimore-Washington loop has been delayed for more than 10 years in parts of Maryland.

But the major threat to reliable power in this region which encompasses the nation's capital is higher-than-forecast load growth. So far this summer, MAAC customers have suffered voltage reductions and power interruptions. NERC has stated that MAAC capacity margins may be inadequate by the mid-1990s with even a 1.6% annual peak load growth. The growth projection the utilities are using for planning is only 1.2%.

What could be done if more power were needed quickly? Woodward pointed out that, if the utilities had to start to tool up to build power plants, manufacturing activity itself would put yet more strain on the system, because it would increase the industrial demand for electrical power! The growth rate at that point of industrial gear-up, Woodward explained, becomes exponential.

- A fourth region heading for real trouble is the **South-eastern Electric Reliability Council** area (SERC), which includes part of Virginia, North and South Carolina, Tennessee, Alabama, Georgia, Mississippi, and Florida. Within SERC is the Tennessee Valley Authority (TVA).

This region, which provided the world with a paradigm for rural electrification in the 1930s and has been the showcase for new innovations in energy technology in the nuclear

age, has been facing a situation for the past two years where parts of the region are operating with lower reserves than desired.

During the Carter administration's tenure, TVA head S. David Freeman (no relation to the author) turned the once-proud electric system into a showcase for "appropriate technology" such as wood-burning stoves, made it grovel before irrational "environmentalists" who were worried about insects and small animals, and tried to convince consumers, who had seen their standard of living revolutionized due to electric power, to "conserve." The aggressive TVA nuclear construction program was all but abandoned.

Throughout 1987, *all five* of the TVA's operating nuclear power plants were out of service, due to "modifications" required by the NRC. According to SERC manager Charles Winn, at the Sequoyah 2 unit, the "safety-related" issues that shut the plant down were found to be "more a problem of paperwork than hardware." To meet demand, according to Winn, the TVA has been buying "tremendous amounts of power," running expensive combustion turbines, and using extensive conservation programs to try to reduce demand.

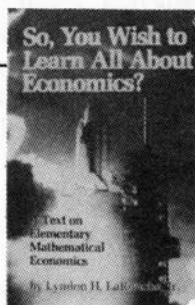
Already this summer, consumers have been left sitting in the heat as their over-taxed utility systems have been trying

to keep up with demand. There is not one region of this country that will be in as "good" shape during the next 10 years as it is now, even if both the low growth forecasts prove accurate and all planned capacity comes on line.

The NERC board, recognizing full well the crisis the country could face, is now considering what will happen if there should be a rapid growth in demand. "There is a widespread feeling," reports Winn, "that the forecasts have been deliberately kept low."

If the utilities are pushed into having to increase capacity quickly, the most expensive alternatives will have to be implemented. U.S. manufacturing capacity for short-term generating units, such as gas combustion turbines, which can be quickly installed, would be quickly overloaded. Old units would be brought out of mothballs and turned on, but they are small and inefficient.

This summer, utilities have had to resort to multiple voltage reductions and interruptions of service in many parts of the country. In many regions, reductions in available capacity are actually projected to decrease for the next couple of years. We are already in trouble. We have little time to keep the coming disruptions in our electric power supply to a minimum.



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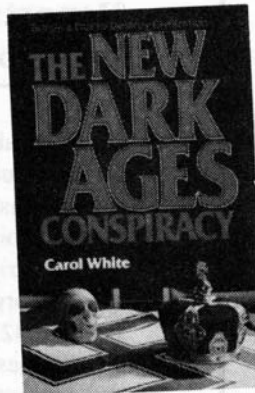
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