EIR Feature

# Is reliable electric power a thing of the past?

by Marsha Freeman

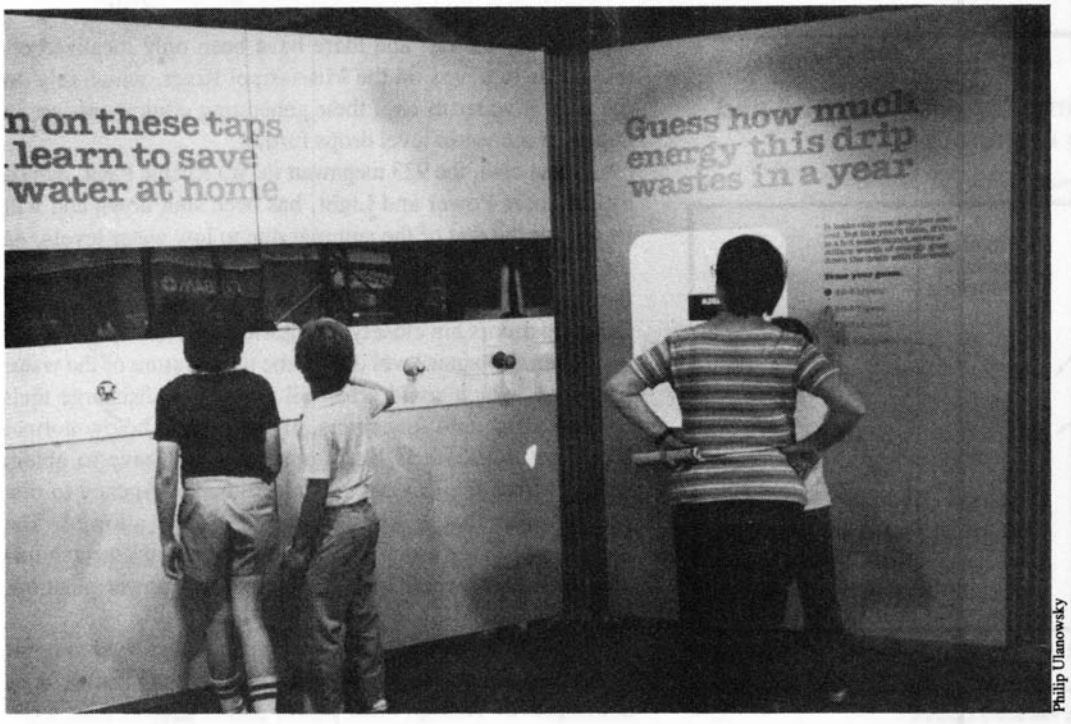
Nothing in this country can be done without electricity. Industry, agriculture, commercial businesses, schools, and households have depended upon a reliable, safe, and economical supply of electric power on demand, for nearly a century. The world's highest standard of living in the United States is based on a reliable supply of this universal energy.

Now, due to years of continuous assault by anti-growth environmentalists who have stretched out the construction time of power plants, financial warfare which has made it prohibitively expensive to finance new capacity, state regulators who refuse to allow utilities to raise rates in order to pay for additions to capacity, and federal regulators who are proposing that the entire system be deregulated and thrown into chaos, large sections of the nation are facing a disappearance of reliable power.

This summer's heat wave, combined with the drought, have increased the stress on a system which has been made vulnerable to any departure from the "normal." Like agriculture, which is only held hostage to the whims of the weather now because of the lack of infrastructure development over the past 25 years, our electric generating system and the transmission grid that delivers power to each home and factory have also been severely undercapitalized.

In forecasts for the next 10 years, the utilities try to convey the picture that they can "get by" with what they have, plus the little more they expect to be available. In order for this to work, they assume, first, that "normal" weather and other conditions will prevail. Second, that all the new capacity scheduled to come on line during this time period does so. Third, that unregulated, non-utility independent power producers will get their new capacity on line on time as well. Fourth, that plant and equipment lifetimes can be extended and plants will last as long as projected, while a significant amount of capacity passes the age of 30 and even 40 years. Fifth, that they can convince the American public to cut back on use and accept unannounced cutbacks, called "load management."

None of these assumptions will necessarily hold true for the coming decade, and actually, it is quite likely that *none* of them will.




Philip Ulanowsky

*A utility company put on this exhibit in the Jimmy Carter era, promoting the Alice in Wonderland idea that "conservation" is somehow a "source" of energy. The Reagan administration promotes the same policy under the guise of "cost effectiveness."*

**Figure 1,** taken from the North American Electric Reliability Council (NERC) and based on a survey of utilities, demonstrates the degree of uncertainty the industry places on its own forecasts. If peak demand increases more than forecast, and projected available resources do not come through by 1992, demand could easily outstrip available resources. In addition, the basis for the low, 2% per year projected increase in electric demand is an assumption of continued real economic stagnation that has put the annual increase in electricity demand at one-third that of the 1960s. The only reason the real state of the electrical industry has not been apparent so far, is the collapse of growth in demand in the industrial sector.

If there were any resumption of real economic growth—not in hamburger stands, but in energy-intensive agriculture and industry—there would be an *immediate* shortage of electric power. Because it takes at least eight years to put new baseload generating capacity in service, years of curtailed service could be the result.

For this summer, if the heat wave and dry weather continue, it is likely there will be an increase in unscheduled outages and voltage reductions, and perhaps breakdowns of equipment running at or above rated capacity for long periods of time. This nation has been eliminating the level of redundancy in the electric system that gives us a "defense in depth" against temporary, "abnormal" conditions, and provides for longer-term economic growth.

Before the end of this century, the prospect of people in the United States living like those in cities in developing nations—with perhaps three or four hours of electricity per day—will become the tragic reality of a nation that allowed itself to be ruled by irrationality.

## Why electricity is unique

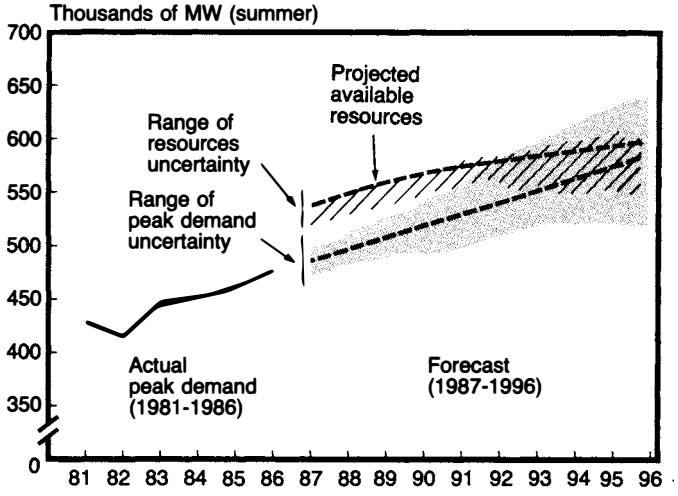
Unlike any other commodity, electricity has to be constantly produced to be delivered instantaneously, because it cannot yet be economically stored. Therefore, utilities do not shut down for weekends or holidays, and their systems must function *all the time*. In order to make sure uninterrupted service is provided, utilities must keep on hand a reserve margin of generating capacity. This reserve margin is related to, though not identical with, megawatts of additional capacity. Historically, a reserve margin of 21% has been considered adequate.

This margin is not "extra," even though no-growth malthusians have tried to convince the American public that U.S. utilities have oodles of power plants they do not really need, because they do not run them all at once. Power plant equipment has to be shut down periodically for scheduled maintenance. At times, there are unscheduled shut-downs, if a piece of equipment unexpectedly needs repair. But the overall system must still continue to function.

Unlike most consumer goods, there are significant swings in consumer electric demand, generally related to the extremes of weather in both the winter and summer. Utility companies must be able to meet these temporary surges in demand without any interruption in service. When the consumer is sweltering in 100-plus degree heat, or suffering in below-zero cold, he is not interested in a list of excuses as to why his lights, air conditioning, or heat cannot be turned on.

FIGURE 1

**Ranges of uncertainty for peak demand and projected available resources**




Source: North American Electric Reliability Council

*If the new electric generating resources that have been projected by the utilities do not come on line on time (top hatched lines) and the peak demand grows faster than the projected average 2% per year (lower grey region), there could be shortage of capacity by the early 1990s.*

For these reasons, and the fact that power blackouts have widespread and serious consequences, the federal government has regulated the utility companies, requiring them to meet safety and reliability standards, and to have the reserve margin deemed appropriate in their systems.

Over the past 15 years, electric utilities have been unable to place new generating capacity on line on schedule, or sometimes, at all. One utility has had to go into Chapter 11 bankruptcy due to the sabotage of the anti-nukes. Transmission lines to deliver the produced power have been challenged and stopped, due to the latest unproven anti-scientific scare—supposed malignant effects from electromagnetic energy being delivered by overhead power lines.

The net result is an interconnected national power grid, made up of nine regional systems, which has increasingly relied on pleadings to consumers to cut consumption, and the wheeling or transfer of power, from one region to another, to avoid building new plants.

But as if that were not worrisome enough, the current weather, and the Reagan administration's drive for "cost-effective" electricity, promise to make things worse.

## Heat and drought

Up until now, the national electric grid system overall has survived the extreme temperatures and lack of rain in much of the nation, and there have been only localized effects. Power plants on the Mississippi River, which rely on the river's water to cool their generating equipment, are in danger if the water level drops further.

In one case, the 923 megawatt (MW) Ritchie Plant, owned by Arkansas Power and Light, has been shut down and will be out for the rest of the summer due to low water levels. At the 1,200 MW New Madrid plant, also on the Mississippi, the cooling water level is only 1.5 feet above the intake. Other operators are closely monitoring the situation.

When the water level drops, the temperature of the water increases, which could effect all plants that discharge their cooling water into low rivers. If the current below-normal levels get worse, it is likely operators will have to obtain waivers from the Environmental Protection Agency to discharge water that is warmer than is usually allowed. The Mississippi River water is also becoming more brackish further up stream, which can adversely effect power plant operations.

The low levels of the Mississippi and other river systems could also affect coal-burning utilities, if the weather does not improve. Though most power plants keep at least a 60-day supply of coal in stockpile on site, according to the North American Electric Reliability Council there may be two or three plants that have to curtail service over the next few weeks if coal barges they depend upon for deliveries, stacked up along the river, cannot make it through.

In the Southeast, the Tennessee Valley Authority (TVA) has cut its hydroelectric generation by 40% to make the water available for navigational and other purposes. Hydroelectric power is only 10% of the TVA's total capacity, however.

In the Northwest, where hydroelectric is the source of more than *half* of the power, utilities have been suffering from a three-year drought, according to the Bonneville Power Authority (BPA). That drought was apparently caused by the cyclical weather disturbances that accompany the El Niño current, and is now abating. However, the BPA has not been able to sell the 6,000 MW of power it usually does to the state of California, because the flow of the Columbia River has been only 70% of normal. The BPA expects reservoirs to continue to be below normal into next year.

The potentially greatest threat to the integrity of large parts of the system due to the extreme weather is the cumulative effect of running generating plants at or above maximum capacity for as long as the heat wave continues. Emergency unscheduled outages could bring parts of the system below the margin of reserve available to take up the slack. Already, unexpectedly high peak demand in large parts of the nation has caused utilities to lower voltage during June and July, and curtail the delivery of power.

Many regional systems have reached new peaks in demand already this summer. For example, in the Mid-Atlantic Area Council (MAAC) region, encompassing Pennsylvania, New Jersey, Delaware, and most of Maryland, the peak so

far is about 3% above last year. It had been forecast that peak demand in this region in 1988 would be *lower* than last year.

This higher peak is due to the heat wave, and Robert Woodward, manager of the MAAC region, explained that load in his area is 30% weather sensitive. Considering that long-range forecasters are now predicting that similarly hot weather is possible for next summer, projections of declining or stagnant peak demand are self-defeating.

Although it might seem that a problem here or there can be localized, the four major interconnects in the national electricity grid can each be globally affected by problems in any locale. Individual power plants share transmission lines which can be destabilized by any sudden changes. One utility, trying to wheel power in from another to cover for a temporary or emergency shortfall in capacity, can interfere with the transmission of power already in progress.

## 'Cost-effect' sabotage

As if the situation overall were not severe enough, the Reagan administration has recently proposed that it be made significantly worse.

On Oct. 6, 1986, Martha Hesse became the chairman of the Federal Energy Regulatory Commission (FERC). Her stated objective has been the restructuring of the electrical industry to assure consumers the "lowest possible energy costs," by "removing regulatory barriers to efficiency and promoting competition," according to *Cogeneration* magazine.

On March 16 of this year, FERC made public three Notices of Proposed Rulemaking, to try to do to electric power what has been done to trucking, telephone service, and the airlines—to make it unreliable, unsafe, and uneconomical.

Already under the Carter administration, the Alice in Wonderland idea that conservation (i.e., austerity) is a "source" of energy, and that small, decentralized "alternative" energy sources should replace "big bad" utilities, had taken hold in certain parts of the country, such as California. Now, the Reagan administration is promoting the same kind of energy policy, not to stop the development of nuclear power, but under the guise of "cost effective improvement" in the electrical industry.

"Independent Power Producers" have became a new category of electricity providers, and the legitimate utilities, under strict government regulation, are supposed to integrate small, likely fly-by-night "producers" into their systems.

These IPPs generally build small-capacity facilities, that can be put on line quickly and use the cheapest available fuel. At the present time, that could be oil or gas. If either goes up in price, which is likely, the economic viability of the IPP, and the power plant itself, could easily disappear.

Utilities are already supposed to purchase power from independent producers, if the IPP cost is lower than the "avoided cost," which is the *highest* price the utility would have to pay to obtain the same amount of power from another source.

FERC's new regulations would "encourage additional supply options for utilities by relaxing regulation of IPPs." The rates for IPPs, according to these changes, would be determined by *competitive bidding*. IPPs could fix rate schedules to underbid utilities, without providing extensive cost documentation. They would be exempted from cost-related accounting, reporting and record-keeping requirements, have blanket prior authority to engage in certain corporate activities (which might otherwise violate anti-trust laws), and would pay reduced filing fees.

The rates for IPP sales to wholesale customers would be governed exclusively by FERC.

In some cases, states are not waiting for these new regulations to go through the process of public hearings in Washington. In New York, the state's Public Service Commission decided in March that utilities *must* accept bids from small, independent producers whenever they need additional energy. Of course, Governor Cuomo's energy plan prohibits the construction of any future nuclear power plants, and is based on buying cheaper Canadian hydroelectric power.

The reaction to these "rule changes," which would destroy long-range planning and the integrity of the system, has been direct. The Institute of Electrical and Electronics Engineers (IEEE) released a position statement on May 7, stating that the "economic results" from any restructuring will depend upon how well technical considerations are accommodated. In other words, nothing that is "cheaper" is really "economical," unless it is reliable, safe, and contributes to the overall health of the industry. They doubt the proposed rule changes will meet that requirement.

In the February issue of *Rural Electrification* magazine, the president of the National Rural Electrification Collective Association, Don Heathington, stated that the FERC "needs to move away from its preoccupation with deregulation of the utility industry and seriously begin looking into the effects of its proposed policies on electric consumers." "Theoretical" economics on the part of the FERC staff, he states, does not substitute for reliable power.

Mr. Heathington states that under the proposed rules, "There is no obligation for the independent producer to continue service." One industry official stated recently, "The generating facilities themselves, their maintenance, their efficiency, their outages, fuel costs and quality, whether they stay in business or not—will, as we understand it, be totally unregulated. The independents would have no duty to serve, no utility obligation whatsoever. They could come and go as they please."

According to the same article, American Electric Power Service Corporation, which is the nation's largest electric system, commented on this scheme on behalf of 30 utilities this past winter, opposing the plan. American Electric declared that if the FERC proposals are allowed to go forward, conventional utilities "will be reduced to the status of local

distribution companies," and future power supplies will be placed in the hands of "thousands of possibly remote entrepreneurs" who cannot assure reliability of service.

Taking the view of the utility industry as a whole, the NERC has warned, "Deregulation will also tend to introduce more uncertainty into the long-term planning for new capacity. For example, customers 'shopping around' for bargain capacity with relatively short-term contracts may result in lack of long-term commitments for required new capacity. Under such conditions, no supplier would have long-term responsibility for supplying future customer loads."

Making herself perfectly clear, this spring Hesse stated in a speech that the words "obligation to serve" do not appear anywhere in the Federal Power Act—as if that makes the policy correct. "If there is genuine access to alternative suppliers, I don't see any public interest justification for imposing an obligation to serve on a seller beyond what's written in the contract." How can a utility depend upon a facility that may fulfill a one-year contract (which it won on a then-competitive bid) and then goes out of business, when it is no longer "competitive"?

Are independents actually cheaper? Industries in Pennsylvania have complained recently that Pennsylvania Power and Light is paying 5.82¢ per kilowatt hour for power from non-utility sources, while it receives only 2.74¢ per kilowatt hour for the power it sells to the Pennsylvania/New Jersey/Maryland Interconnection.

The utility countered the charge that it was subsidizing alternate energy producers, by saying that payments to independents that are higher than actual avoided cost, are a result specifically envisioned in federal regulations! So much for economical power.

If one wonders where Ms. Hesse might have gotten the idea to deregulate the electrical utility industry, one could read the 278-page report by the President's Commission on Privatization, which states that, "a proposal to divest the government power-generating facilities might suggest giving the facilities (or selling them cheaply) to the current power customers, whose historical receipt of subsidized power rates may be seen as having created a de facto entitlement to continued low rates." The report also recommended selling Amtrak and the Naval Petroleum Reserve to private citizens. Feel like running your own power plant?

## Where are we headed?

The prospects for the continued uninterrupted delivery of electric power look dimmer and dimmer, over the next few years. The utilities have estimated that load growth will increase at an average rate of 2% per year, yet they have planned for adding only an average of 1% per year of new capacity! This 2% growth figure already incorporates the projected voluntary reduction in demand by consumers, through load management.

Since the utilities have not been allowed to place new capacity in service on time, they have developed load management as a tool to delay capacity additions. The customer is given the option of paying a lower price for power, if the utility is given the permission to switch off equipment, such as water heaters, air conditioners, and irrigation pumps, when the peak demand is higher than what the utility can deliver.

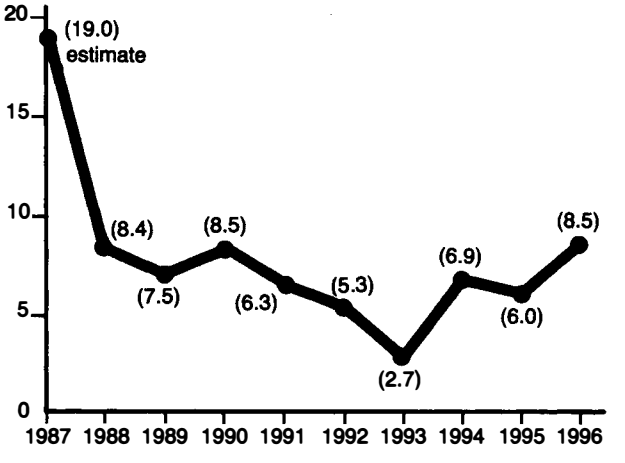
NERC reports that in 1986, 9,200 MW of U.S. load was under load management, which was equivalent to 1.9% of the total peak demand. They have projected that by 1996, the equivalent of 3% of peak demand will be under this control, meaning that they have lowered the forecast of how much capacity will be required, by that amount.

As they point out, however, "The danger is that customers who initially participate in load management programs because of financial incentives may decide, once the electricity to their equipment has actually been interrupted a number of times, that the inconvenience of these interruptions outweighs the cost savings and withdraw from the program." It seems logical that most people would clearly prefer to pay a little bit more for power than worry that their power will be shut off.

NERC also warns that this gimmick for *apparently* lowering demand "cannot be considered as a resource on the same basis as generating capacity."

Even if we buy the idea that load growth will be somewhat lowered through voluntary austerity, examining the data, it becomes clear that there is just about a zero possibility that the utility industry will be able to put enough new capacity

FIGURE 2
**Projected capacity additions**
(thousand MW)




Source: North American Electric Reliability Council

*Over the next decade, the NERC has projected that 79,000 megawatts of new capacity will be added to the grid. This projection is a drastic drop from the additions made in the past decade.*

on line over the next decade to provide reliable power. Here are the reasons why:

## Adding new power plants

NERC estimates that between 1987 and 1996, 79,300 MW of new capacity will be added to the U.S. energy grid (see **Figure 2**). This is an approximate 1% per year average growth in capacity. By comparison, during the last decade, *261,000 MW* of new capacity were added.

Of this projected 79,300 MW, 67,800 MW will be utility-owned, and the remaining 14% will be owned by independent producers. This projection for the decade is 7,400 MW less than that of a year earlier.

But even NERC's very low projections are highly optimistic.

One way the utilities hope that they can get away with such a small addition, is by deferring retirement of old plant and equipment. Between 1987 and 1996, 10,400 MW of capacity will be retired, making the supposed net addition 68,900 MW. This is based on the plan to extend plant lifetimes and postpone retirements, leaving some regional grids with more than 10% of their capacity at least 40 years old by 1991. It is doubtful how long these aging facilities will actually last. The number of *planned* unit retirements has dropped 11% from last year's projections.

How likely is it that the 67,800 MW of new utility power plants will come into service when they are supposed to? Not very. For the first half of the decade, most of the new capacity is supposed to come from 22 new nuclear power plants. Of the 10,870 MW of nuclear power scheduled for operation by 1986, only 3 plants totaling 3,360 MW were placed in service.

Since their 1986 review, NERC reports, 10 of the 22 projected units have been delayed an average of 12 months, and "the service dates of 22 [remaining] nuclear units must be considered at risk." In 1987, six of those new units were put into service. According to the U.S. Council for Energy Awareness, there are only 14 plants remaining with construction under way, and three of these now have 'indefinite" start-up dates. And how many more of the nuclear units, whether they are completed or not, will not be allowed in service due to regulatory sabotage? So much for the next five years.

For the second half of the decade, mainly coal-fired capacity is supposed to come on line. However, 35.8% of those plants have not even started construction yet. NERC reports that 9,800 MW of the coal additions now under construction are plants of 100 MW or more with projected in-service dates that only allow 5-9 years for construction. It typically requires 8-10 years to license and build large coal units, and so, according to NERC, "It seems likely that much of this new coal-fired capacity will either be completed late, or replaced with shorter lead time [and more expensive] generator types." So much for coal.

As **Table 1** shows, fully 44.6% of the projected new capacity of 79,300 MW is not under way yet. Maybe, you say, the non-utility additions, which are smaller and less likely to be sabotaged by the regulators and environmentalists, will pull us out of the fire. Observe:

Of the projected 11,717 MW of non-utility additions, 2,834 MW are planned to be natural gas-burning (see **Table 2**). As the price of gas increases, these "planned" units will be less and less attractive economically. Another 763 MW is slated to come from geothermal, wind, solar, refuse, and wood. Very shaky economics, and hardly reliable.

The rest—coal, hydroelectric, and "unknown"—even were they to come on line, will be unregulated, with no long-term commitment to produce power for anyone. The capacity will have to be competitive with other power. This is unlikely as well. There are regions in the reliability system that are relying on up to *half* of their new capacity over this decade to come from such non-utility producers.

TABLE 1
**Projected plants not yet under construction**

| Type | Number of Units | Thousand MW | % of Total NUC* | Total MW Planned |
|---|---|---|---|---|
| Nuclear | 0 | 0 | 0 | 25.3 |
| Coal | 25 | 8.1 | 35.8 | 22.7 |
| Hydro | 85 | 2.0 | 79.8 | 2.5 |
| Other utility | 145 | 15.7 | 90.0 | 17.3 |
| Non-utility | NA | 9.6 | 84.0 | 11.5 |
| Total | — | 35.4 | 44.6 | 79.3 |

*Not yet under construction
Source: North American Electric Reliability Council

TABLE 2
**Projected non-utility additions, 1987-96**

| Fuel type | MW |
|---|---|
| Gas | 2,834 |
| Hydro | 531 |
| Coal | 1,002 |
| Geothermal | 308 |
| Wind | 129 |
| Solar | 222 |
| Burning refuse | 65 |
| Wood and wood waste | 39 |
| Unknown | 6,587 |
| **Total** | **11,717** |

Source: North American Electric Reliability Council

## Additional problems

There are other potential problems looming on the horizon. For years, the Congress has debated possible changes in the EPA regulations for sulphur and carbon emissions from coal plants, due to the effect of acid rain. If the standards were raised, according to a NERC study, the heavily coal-dependent Midwest would face a situation where 11% of the capacity available in 1986 would be retired, because it would be prohibitively uneconomical to retrofit old plants with pollution control equiment.

In addition, another 4% reduction in available capacity would be incurred from the electrical cost of operating the control equipment itself, and because these plants tend to be out of service more often. Nationally, NERC estimates that between 25-30,000 MW of *additional new capacity* would have to be added to the grid by 1996 to replace what would be lost in trying to meet more stringent pollution control regulations.

## How much of a margin?

Even if all of the new capacity NERC has projected comes on line, and old plants survive as long as hoped for, the capacity margins in all of the nine regional NERC systems will be lower than they are today. The reduction in capacity margins shown in **Figure 3** are the amount by which the planned capacity resources available exceed the peak demand expected by the region.

Though the capacity margins that are reasonable do differ from region to region, the distinctly downward trend over the next decade is the wrong direction to go in. According to NERC, "lower capacity margins projected by 1996 will result in less flexibility for utilities to meet situations that are more severe than those expected." This obviously includes weather extremes, delays or cancellations of new capacity, etc.

"One result," NERC continues, "will be reduced opportunities for individual utilities to purchase capacity from neighboring systems. This could increase the likelihood of load curtailments should temporary capacity shortages develop in an area." The ability of the system to respond to *any* perturbation will be curtailed.

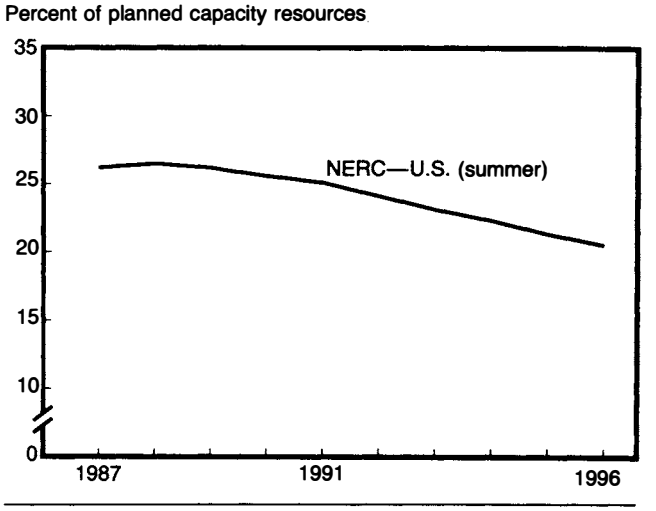
All in all, it does not look very likely that system reliability will be maintained over the near term. Even if, by some miracle, all of the new capacity that is planned does come into service on time, it is doubtful that the transmission capacity would exist to deliver it to people's homes and workplaces.

## Transmission woes

Power generated at a plant is fed into transmission lines, which then deliver it to each local site. In the United States, there are four major Interconnections dividing the country (**Figure 4**), within which the individual utilities transport power. But over the past decade, the purpose of the transmission system has not just been to deliver reliable power to customers.

When placing new plants on line became more difficult, utilities began to use the electric transport system to "wheel" power between them, so that if one region had a surplus of

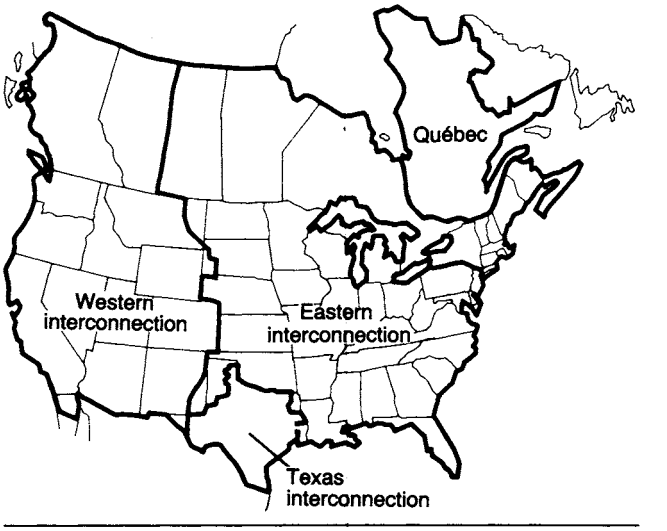
FIGURE 3
**Estimated capacity margins**




Source: North American Electric Reliability Council

*Because there will be less capacity added than required over the next decade, capacity margins will be lower nationally in 1996 than they are today.*

FIGURE 4
**Interconnections of the North American Electric Reliability Council**




*The continental United States is divided into four major transmission interconnections, which also encompass Canada.*


Linda Ray

*Unreliable is hardly the word for solar power. At "Earth Day" in New York City, 1980, a system of mirrors is used to boil water in a teakettle held by a life-like mannequin. It took 40 minutes to make a pot of tea.*

power, it could deliver it to a region that was short. Though this capability is critical in an emergency when equipment is down, it is done now on a continuous basis, as a way of allowing utilities to avoid building new plants.

Also, because the utilities have been placed under financial stress, power which is cheaper, such as hydroelectric, is wheeled to other regions, to replace higher-priced fuels, such as oil. This is done on an hour-to-hour basis. Wheeling of power has placed enormous stress on the transmission system, and has left many power lines operating at 90% of capacity and above for significant periods of time. This decreases the ability of the utilities to respond to genuine emergencies, and threatens the reliability of the entire system.

Unlike the transport of other commodities, where an interruption in one spot can be quickly isolated (water mains turned off, for example), a disturbance occurring at any location in the area will be felt at all other points in the grid, and cannot be easily isolated. There is no way to separate the electricity flowing through the power lines that is replacing power in an emergency, from power being wheeled between utilities to save money.

Similarly, according to NERC, "Electricity transfer from one portion of an interconnected area will, to some extent, flow over all transmission lines, not only those in the direct path of the transfer." If there is a problem, voltage collapse and instabilities are phenomena that occur in fractions of a second.

In the next 10 years, NERC expects energy transfers and purchases from other supplies, such as Canadian hydroelectric power, to increase. This will put more strain on an already-stressed system.

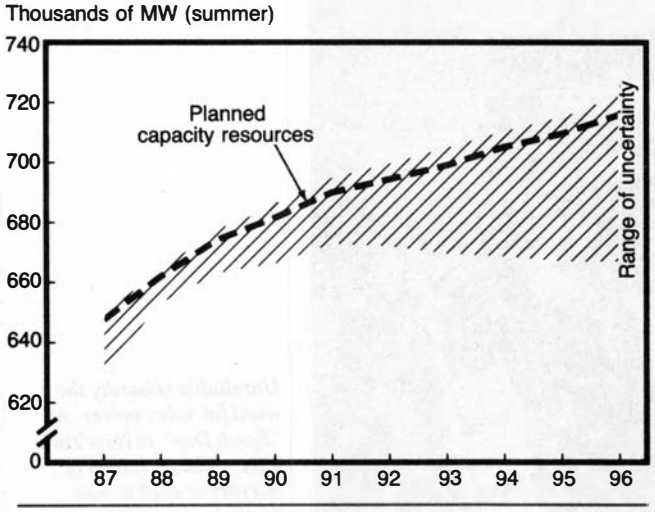
Can't we build more power lines? Transmission systems have been the most recent target of the people who have prevented the operation of power plants. Fantastic claims have been made about the supposed damaging health effects of electromagnetic fields that are produced around high-tension power transmission lines. Like the supposed danger of nuclear power, these claims have no basis in scientific study, and are being used for political ends.

NERC states, "Opponents of generation and transmission facilities have become very skilled at using a variety of environmental issues to block or delay needed facility construction. Frequently, these public interveners use regulatory or judicial forums as well as the news media to generate public doubt about the safety or environmental impacts of proposed utility facilities. The controversial issue of health impacts of electric and electromagnetic fields has caused several critical transmission projects to be delayed, abandoned, or even de-energized."

So far, projects have been affected in Florida, Texas, and New York. A scientific advisory panel established by the New York State Power Lines Project, determined that, in the data they reviewed, "no effects were found on reproduction, growth, or development." On the concern that leukemia and brain cancer in children are more likely if they live in homes where there are elevated power lines, the scientists conclude,

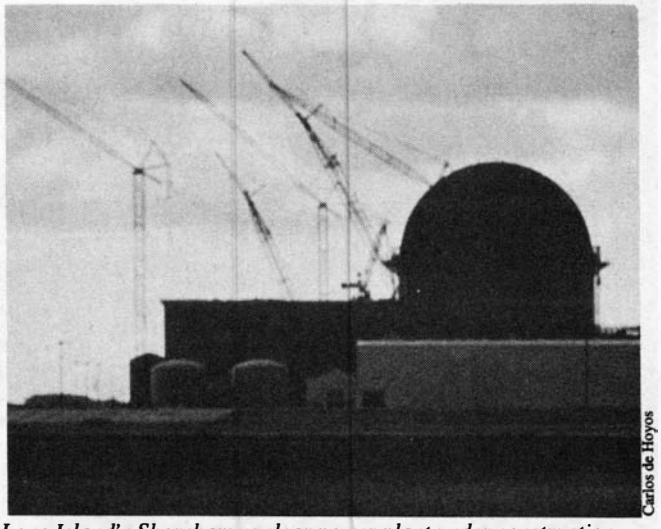
FIGURE 5

**Uncertainty of planned capacity resources 1987-96 forecast**




Source: North American Electric Reliability Council

*Even surveys of the utilities leave a large band of uncertainty in projections over the next decade. In the worst case, capacity resources will begin to decline by 1992.*




*Long Island's Shoreham nuclear power plant under construction in 1982. The criminal maneuvers that kept this plant from going on line, have left the densely populated New York metropolitan area at the mercy of potential brownouts and blackouts.*

"No risk assessments can be made" because of the lack of rigorous scientific experiment. No matter, to the environmentalists.

## How much will we grow?

There is absolutely no basis on which to believe that U.S. electrical energy growth will average a paltry 2% per year over the next decade, although that is what is being projected for planning purposes. Even though the overall productive economy of the United States has been collapsing at an increasing rate, and "service" businesses have been the major new economic activity, nationwide, peak demand increased 4% from 1986 to 1987. In some regions, this increase reached more than 6% over 1986. Even with no change in overall economic policy, but just using an extrapolation of the present into the future, a 2% per year rate of increase is unrealistic.

Also, the 2% per year is an *average* growth projection. In some regions, peak demand is actually forecast to *decrease* in the next couple of years. There is no basis in reality for these projections. The forecast has apparently been made simply to match the resources that will be available at that time.

But NERC *is* sounding the alarm. After painfully detailing how the utility industry will try to keep power reliable on a shoestring, NERC warns, "There is a 50% chance that actual demand will exceed the base peak demand projections, and a 10% chance of actual demand exceeding the upper bound" of their planning projection. "Should the latter occur," NERC continues, "demand could exceed projected available resources in 1991 in the U.S., and one year earlier if the lower bound of resource availability were also to occur."

The growth in peak power demand has spanned the range from neglible to 9% in different regions of the country in the past year. In 1987, Applied Economic Research Company, Inc. did a study for the Washington, D.C.-based Utility Data Institute, titled, "The Adequacy of U.S. Electricity Supply Through the Year 2000."

The study forecasts average national demand growth at 2.4% annually, with regional variations spanning 1.7% to 3.2%. The report concludes that the probability that U.S. utilities will be unable to meet their peak loads is almost 10% in 1992, 25% in 1994, and over 50% by 1997. This is reflected in NERC's own projections (see **Figure 5**) where, if planned capacity resources do not materialize, by 1991, the overrall amount of such resources could actually be *declining*.

There is no question that our once-prized electricity generating and transport system is seriously stressed. How long will it take before brownouts and blackouts become the common order of the day, mimicking the sad state of the undercapitalized, starving developing nations? Some of the factors that will determine the answer to that question are unknowable, such as the weather, but the most important are man-made.

*The second part of this series will detail the electric grid situations in individual regions, the sabotage of nuclear power, and the financial strangulation of the industry.*

# SPETSNAZ

## SPETSNAZ

In the Pentagon's "authoritative" report on the Soviet military threat, *Soviet Military Power 1988*, the word *spetsnaz* never even appears. But *spetsnaz* are Russian "green berets." Infiltrated into Western Europe, *spetsnaz* have new weapons that can wipe out NATO'S mobility, firepower, and depth of defense, *before* Marshal Nikolai Ogarkov launches his general assault.

## ELECTROMAGNETIC PULSE WEAPONS

At least the Pentagon report mentions them—but only their "defensive" applications. In fact, they can be transported by *spetsnaz*, finely tuned to kill, paralyze, or disorient masses of people, or to destroy electronics and communications. With EMP, as strategic weaponry or in the hands of *spetsnaz*, the Russians won't need to fire a single nuclear missile to take Europe.

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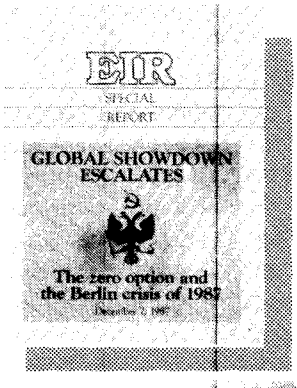


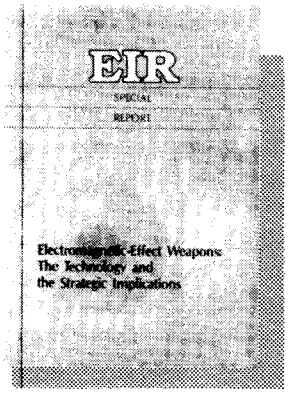


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