

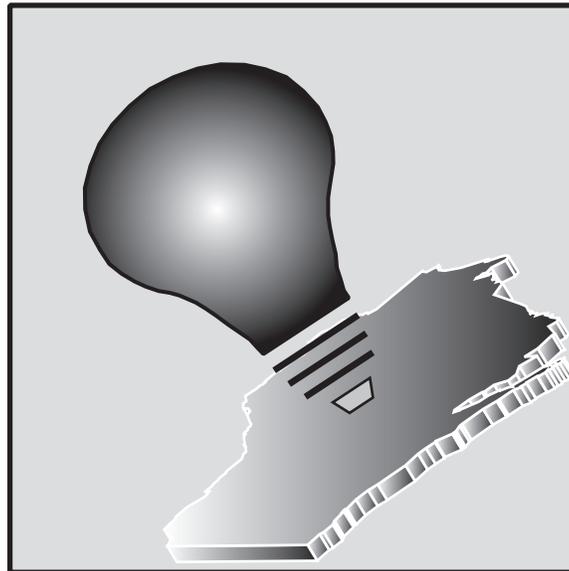
LIGHTS OUT

WISCONSIN'S ELECTRIC FUTURE

PETE MILLARD

The summer of 2001 produced only average high temperatures and dew points, yet electricity utilities were producing record amounts of power to satisfy their customers' needs. On several occasions in late July and early August, Wisconsin Energy Corporation's two utilities, Wisconsin Electric and Edison Sault Electric, broke peak demand records, finally topping out at 6304 megawatts at 2 p.m. on August 7, about 3 percent higher than the previous high mark. In Madison, during the same week, Wisconsin Electric hit new highs, and Alliant Energy Corporation made public appeals for customers to conserve power, even though the south-central Wisconsin utility curtailed electricity supplies to industrial and commercial companies that subscribe to interruptible rates. The curtailments are an exercise far too common for its larger customers, said a Madison-based board member of the Wisconsin Manufacturers & Commerce trade association.

The summer curtailments and peak demand figures were coming at a time when industrial electricity sales by all Wisconsin utilities were down 4 percent compared to a year



ago. Moreover, there were no widespread summer storms that damaged key transmission or distribution lines causing power plants to trip off line. Utility control-room managers would have really sweated it out this summer if the economy was humming the way it was during most of the 1990s or a major storm had passed through the region. As it was, the summer proved to be enough of a

scramble to keep the lights on, and that's not an encouraging sign.

Every summer since 1997, Wisconsin has experienced electricity shortages, public appeals for conservation, and curtailments; and the prospects over the next several years are not rosy. An exceedingly hot summer over the next five years, perhaps similar to what hit the state in 1995 or 1988, could thrust the state into a debilitating power tailspin leading to widespread, California-like blackouts.

While the state's electricity-industry leaders are trying to convince the public that Wisconsin needs more electricity generation and interstate transmission facilities to handle

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the growth in demand, you have to wonder why regulators, lawmakers and power industry executives did not predict 15 years ago that an energy crunch was looming and raise the red flags. How could the power market become so unbalanced in Wisconsin after decades of ample supplies and low prices?

There is no short answer to the power-shortage problems. There are a set of reasons why Wisconsin has experienced energy supply problems and disruptions over the past five years and will continue to experience annual concerns until utilities and other energy companies build more transmission and generation facilities, expand natural-gas pipeline capacity, and create a more energy-friendly, regulatory climate.

Energy decision makers point to outmoded public policies that discouraged utilities from building or expanding new facilities while at the same time propping up activist groups that opposed new generation and transmission projects for pollution and land-use reasons. Government officials claim utilities were too cautious to make investments in new infrastructure before better understanding how deregulation would affect their industry and their bottom lines. Environmentalists and citizen advocacy groups say both utilities and government are to blame for the power shortages because they refused to rely more heavily on conservation or to consider more seriously new distributed generation technologies which rely heavily on micropower generators that are more evenly dispersed throughout a region instead of one large base-load power plant.

Power Demand Growth

Between 1988 and 1998, power consumption grew 15 percent in the United States and generating capacity fell 5 percent, according to the U.S. Department of Energy. Over the same period, the Wisconsin Energy Bureau estimates that demand for electricity increased more than 30 percent. Wisconsin has added 1631 megawatts of power since 1997, roughly a 12 percent increase in production, but the deficit is growing faster each year. Another 1103 megawatts of power have been approved by

regulators but not yet built. There also are plans to add 4000 megawatts of electricity if regulators give the okay. The problem is that half of the proposed new generation hinges on financing packages and land-use decisions that could delay or kill the expansions.

“There was always the perception that if we concentrate on conservation we could cut the rate of growth,” said Mark Williamson, executive vice president and chief strategies officer for Madison Gas & Electric Co. (MGE). “But nobody came close to predicting accurately the growth in the business sector during the 1990s.” Demand for electricity has shot up in the last decade because of population growth in some regions, particularly California and other Western states, but mostly because of the proliferation of new electricity-gobbling devices, such as bigger and faster computers. In Wisconsin, the growth can also be explained by the unprecedented economic boom of the 1990s. Economic growth meant more industrial power sales to Wisconsin businesses. Williamson estimates that usage among industrial customers in Wisconsin grew 50 percent faster than residential demand. The economic good times also have given more Americans the means to buy those new computers, big-screen televisions, stereo equipment, and even larger and more power-intense new homes. “The economic growth over the past 10 years was hard to predict because it didn’t fit anybody’s model,” said Williamson. “It caught the industry by surprise.”

Power demand is growing in the winter months, too, when utilities typically shut down some of their plants for maintenance. An energy industry trade association, called the Alliance of Energy Suppliers, estimates that demand for electricity in winter, which is considered a measure of the nation’s baseline appetite for power without the skewing effects of summer air conditioner use, will rise by 23 percent between 1998 and 2008.

Utility executives are the first to admit that power plant construction has not kept up with demand. Even though Wisconsin has added 1631 megawatts of new generation since 1997,

Wisconsin Energy predicts that if the current 3 percent-a-year increase in demand continues, the state will experience a 4000 megawatt shortage by 2010. As part of its Power the Future plan, Wisconsin Energy has proposed building five new generating units within the decade for a total of 2800 megawatts of new power. Alliant Energy and Wisconsin Public Service Corporation, Green Bay, also have plans to add to their power supply, adding anywhere from 1500 to 2500 megawatts.

Since fewer power plants have been constructed in the past 15 years, the power industry's reserve margins have dropped significantly. The reserve margin is the safety net between the peak demand and maximum amount of power that energy utilities and companies can generate. The reserve margins are in place to protect against the violent storms or exceedingly hot summers that could force utilities to declare the kind of emergencies that spawned the California rolling blackouts. The Alliance of Energy Suppliers projects that the U.S. reserve margins have fallen nationally from 20 percent to 14 percent. Wisconsin reserve margins going into the summer of 2001 were 20 percent. But since 1997, there have been more than two dozen instances of Wisconsin utilities making public appeals to conserve energy or curtailing supplies of industrial customers that buy power at interruptible rates.

While the energy supply deficits come as no surprise to some utility executives, there was reluctance on the part of the industry leaders to propose new plants in the face of shortages because of uncertainties surrounding the nationwide move to deregulate the \$218 billion electricity market. Electric utilities could not justify building new plants unless they were confident they could run them profitably

and recover their investments in a timely fashion. But there were no guarantees.

Just as important was the opposition that most community leaders have to adding new generation plants or expanding existing ones. The NIMBY, or not-in-my-backyard syndrome, is stronger than ever. "Companies have moved forward to propose new plants and transmission projects, but they have discovered conflicting requirements in regulations that makes it difficult to build," said Richard Grigg, the president of Wisconsin Electric-Wisconsin Gas, a utility subsidiary of Wisconsin Energy Corporation.

"Public opposition to building anything is greater than in the past and more sophisticated because the opposition groups are better funded and well-networked," Grigg added. In Wisconsin, opponents to power lines and generation plants have succeeded in delaying projects or killing them altogether. Efforts by legislators to provide financial incentives in the way of added tax revenue for communities that accept new plants and power lines were axed from the 2001-

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2003 budget bill presented to Governor Scott McCallum. The current utility taxes are distributed to communities through the state's shared revenue formula. Communities that house the plants and lines do not benefit as much as they should, said Representative Tim Hoven (R-Port Washington), who has a Wisconsin Electric power plant in his district. "Communities that put up with the inconvenience of power plants and transmission lines should earn more in tax revenue, otherwise there is no incentive for a community to grant approval," Hoven said. "Why would anybody want a transmission line in their city, village or township if they get next to nothing in return."

Transmission

The problems Wisconsin utilities face on transmission lines are no different than those throughout the nation, said Jose Delgado, president of the American Transmission Company, Pewaukee. North American transmission systems are increasingly being pushed to their limits to meet the demands of an evolving electricity marketplace. A recent study by the Cambridge Energy Research Associates cites market-driven changes in transmission patterns, rapid growth in the number of regional transactions, and growth in the number of areas with generation capacity shortages all serve to highlight new transmission constraints.

The high voltage transmission lines are humming with more volume than ever because power marketing companies and brokers are buying and selling large volumes of electricity and moving it from one region to another. The Electric Power Research Institute (EPRI) claims that the volume of electricity transfers at two sample reliability councils in the West increased 464 percent since 1996, the year the Federal Energy Regulatory Commission created a policy of opening access to transmission lines in the United States.

The open access policy almost caused the collapse of the Wisconsin transmission grid in 1997 and 1998. At the same time Wisconsin was besieged with power shortages. In June of 1997 and June of 1998, the Wisconsin transmission network was overburdened by high transmission traffic. The overuse came within a few minutes of causing three power plants in the state to trip off line, which would have caused the grid to collapse, spurring a cascading blackout through northern Wisconsin and parts of Minnesota and Michigan, said an engineer from the Wisconsin Public Service Commission (PSC).

Supporters of the much-maligned Arrowhead-Weston line, which has been approved by the PSC but faces legal challenges from opposition groups, cite the near collapse of the Wisconsin grid in 1997 and 1998 as chief reasons why a new line is needed. The 250-

mile, \$175-million project extends from Wausau to Duluth, MN and would be the first major new construction of transmission lines in Wisconsin since 1975.

According to EPRI, new transmission capacity has been plummeting for the last 20 years. Just as with power plants, NIMBY and BANANA (build absolutely nothing anywhere near anybody) opponents make it difficult for utilities to get plans approved. Plus, utilities are not inclined to invest in power line projects because the return on investment is lower than for power plants and expanding the transmission capacity allows competitors to bring more outside power into a utility's region, perhaps driving down their rates.

Regulatory Climate

Until recently, Wisconsin was never a kind place for outside investors to risk their capital in new power generation facilities because of stringent regulatory hurdles. Energy utilities, working to keep their competitors out, and the Wisconsin Public Service Commission, concerned about keeping rates low, are responsible for thwarting early efforts of independents from entering Wisconsin. The PSC of 20 years ago also took a slow approach to implementing federal policy.

In 1978, the U.S. Congress passed the Public Utilities Regulatory Act of 1978, known in the industry as PURPA. This law opened the door for independent power producers (IPPs) to compete with existing utilities to provide new generation facilities. Even though PURPA required state commissions to set up procedures to make it easier for IPPs to enter markets, the Wisconsin PSC was slow to approve many projects in part because lower prices in Wisconsin made it hard for IPPs to compete. More than 15 years passed in Wisconsin before IPPs managed to gain a foothold. Between 1997 and 2001, 62 percent of new generation proposed, about 1065 megawatts, is owned by IPPs.

Perhaps the most serious regulatory obstacle that all utilities and energy companies in Wisconsin look back at and frown on is the PSC's Advance Plan (AP) process.

In 1975, the Wisconsin Legislature created a law that provided an “advance plan” process to inform the PSC and the general public of state electric utilities’ plans to meet their customers’ energy needs. This process eventually stunted the growth of the Wisconsin energy industry, said one Madison-based utility executive.

The Advance Plan was a broad process designed to facilitate the consideration of major issues, such as cost, reliability, efficiency, safety and environmental effects of various alternatives for meeting future electric energy needs. Initially, the AP process was the medium through which Wisconsin utilities developed plans based on long-term projections of growth in demand and energy consumption, incorporating efficiency and load-management, or conservation, projections. The plans identified when new power supply resources were needed, what type of power supply resources were needed, and what long-term transmission solutions were needed.

What Wisconsin created in the Advance Plan was a new, centralized, government planning mechanism imposed on the electricity marketplace when there was an excess of generation capacity in the state because of a recession, said Bill Harvey, the president of Alliant Energy Corporation, Madison. “This planning process took on an institutional life,” Harvey said. “Rather than serving as a process to determine what should be built, where and when, it became a process that focused on avoiding at all cost the building of anything, anywhere and anytime.” The energy industry got worn down by the commission’s AP process, Harvey said. By the time the economic boom times of the 1990s hit, and talk of deregulation was sweeping the power industry, utilities were reluctant to reveal their

planning strategies in an Advance Plan document and few building projects were proposed.

Transmission construction was hardest hit by the Advance Plan process, said an energy executive. The PSC board members and the agency’s staff throughout the 1980s and 1990s purposely limited the size of the system to what was absolutely necessary for reliability, not what was needed to lower prices, said Roy Thilly, president and chief executive officer of Wisconsin Public Power Inc., Sun Prairie, an energy company owned by 30 municipal-owned utilities.

“The reluctance on the part of regulators to approve new transmission lines was focused on the lines being politically unpopular,” said Thilly. “At the same time, utilities did not want to invest hundreds of millions of dollars on facilities that would open the way for new power sources to compete with their native generation.” Thilly expects the creation of the American Transmission Company (ATC) to be more successful in convincing the general public and the PSC that new

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transmission facilities are seriously needed. The ATC was opened January 1, 2001, after being formed with the state legislature’s approval, to address Wisconsin’s reliability concerns. The electricity transmission assets from four of the state investor-owned utilities and a handful of municipal utilities were sold to the ATC. In exchange for the transmission wires, the utilities received shares of ATC stock. Since the ATC is regulated by the state and not under the management of a single energy company that has multiple business interests, the ATC will be more willing to share information and strategies with people who typically oppose any and all building projects.

Delgado knows his company has a difficult task ahead when it comes to selling the need for new transmission projects, particularly the larger projects like the Arrowhead-Weston line. The current generation of landowners saw what their parents and grandparents went through when the last large transmission lines were completed in the 1960s and 1970s and did not appreciate the way they were treated, Delgado said. "There are stories, myths, if you will, about how abusive (utilities') real estate people were to landowners," Delgado said. "Landowners still tell horror stories about how utilities bought land by frightening landowners into submission.

"The average landowner today is very savvy and knows his rights and has a low tolerance for being imposed upon," added Delgado. "(ATC) has to get better at passing information on to landowners and other groups that may be affected by eminent domain laws."

Another policy issue in Wisconsin that has affected how energy projects are advanced through regulatory or legislative processes is the ability of intervenors and activists to tap funds to oppose utilities' building plans. Utilities even contribute funds to the intervenor pot so the opponents are not completely at a disadvantage in public hearings or in the courts.

"Our intervenor laws complicate the process of getting approvals because it brings out people who otherwise could not afford to put up a fight," said Delgado. "It may be a good way of getting people involved in reaching a public consensus, but it puts an added burden on the utilities trying to build new infrastructure."

The success some groups have had in the past opposing the construction of power plants

or transmission lines in either the courts or the PSC has created a winning momentum and confidence among intervenors who are now more than willing to go the extra mile to fight projects, said MGE's Williamson. Environmental groups and landowner groups also have their own agenda as to what kind of energy expansion makes sense. As a substitute for coal-fired power plants or high-voltage transmission, the activists propose distributed generation as the answer. Fuel cells and micro-turbine generators are creating interest among the opponents of new transmission lines and remote power plants connected to customers over the long transmission and distribution networks. Right now, the cost and performance efficiencies of the distributed generation plants, some as small as a two-car garage, are restrictive.

Conclusion

Wisconsin is chipping away at the public policy obstacles that have restricted the development of power plants and transmission over the last 25 years, such as the Public Service Commission's Advance Plan process. Legislators understand there is a need to provide more revenue incentives through the utility tax that will entice municipalities to be more open to new plants and high-voltage lines.

The fear of California-like blackouts cropping up in Wisconsin have prompted energy companies and regulators to approach their energy-education roles more seriously; and there is an openness promised that is expected to erase past mistakes. Wisconsin utilities, buoyed by holding company policy changes, have more flexibility in building and financing power projects. Consequently, the utilities are more willing to take a risk in the state's energy future. How quickly energy projects are completed in the state hinge on the courts and PSC's ability to avoid lengthy legal delays.