

# Running Out of Power

By  
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**W**ILL OUR NATION'S ELECTRIC SYSTEM CONTINUE to provide a reliable, safe and affordable supply of power in coming years? This question was asked most recently by the North American Electric Reliability Corporation (NERC), a Princeton, N.J.-based nonprofit organization charged with monitoring America's power system reliability.

In October 2007, NERC published its annual Long-Term Reliability Assessment, which provides a forecast on how much electric generating capacity will be available during the next decade. The report also estimates how much electricity people will use over that time.

The organization's findings revealed that current plans to build power plants and high-voltage transmission lines lag behind the expected growth in power consumption. They also match a U.S. Department of Energy forecast that demand for electricity nationally will increase by 40 percent during the next 22 years. Even if the country can dramatically increase efficiency and conservation programs – electricity demand over time will continue to grow as our economy and population grows.

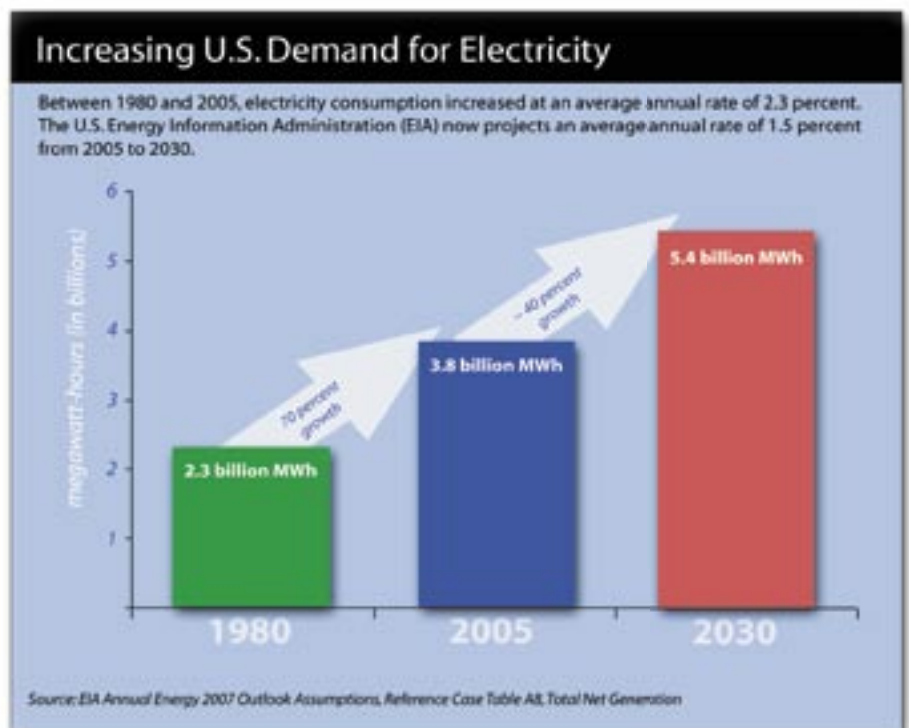
NERC warned, "Demand for electricity is expected to increase over the next 10 years by approximately 18 percent in the United States, but confirmed generation capacity will increase by only 8.5 percent;

expansion and strengthening of the transmission system [also] continues to lag demand growth and expansion of generating resources in most areas."

To fully grasp the impact of that statement, consider these facts about generation, transmission and the demand for electricity:

- Electricity can't be stored – it must be used immediately and flow continuously. Electric energy generated at a power plant flows through high-voltage transmission lines to substations, where it is reduced to a lower voltage for safe distribution to homes and businesses. Reliability refers to the availability of electricity when and where consumers need it, without interruption.

- Not every power plant generates electricity all of the time. Across the country on any given day, it is normal for numerous plants to be shut down due to a broad range of issues, such as scheduled main-



tenance, fuel availability or price or low water levels at a dam where a hydroelectric power plant operates.

• High-voltage transmission lines carrying electricity from generating plants to distribution substations need regular and emergency maintenance. Vegetation management to clear rights-of-way or weather events, such as ice storms or tornadoes, can interrupt the flow of electricity on these “power highways.”

For consumers to receive reliable electric service, a certain amount of extra capacity must always be available. NERC has stated that generation capacity margins should average 15 percent or more. In other words, generation plants should be able to produce approximately 15 percent more electricity than consumers are expected to use during times of peak demand – the electric utility industry’s equivalent of rush-hour traffic. This helps ensure sufficient power in an emergency or if a specific power plant needs to be shut down for service.

The NERC report also found that even if all power plants under construction now are completed on time and begin generating electricity in the amounts slated and new construction ramps up according to plans now underway, generation capacity margins will drop below minimum reliability margin levels in certain areas of the United States within the next two to three years.

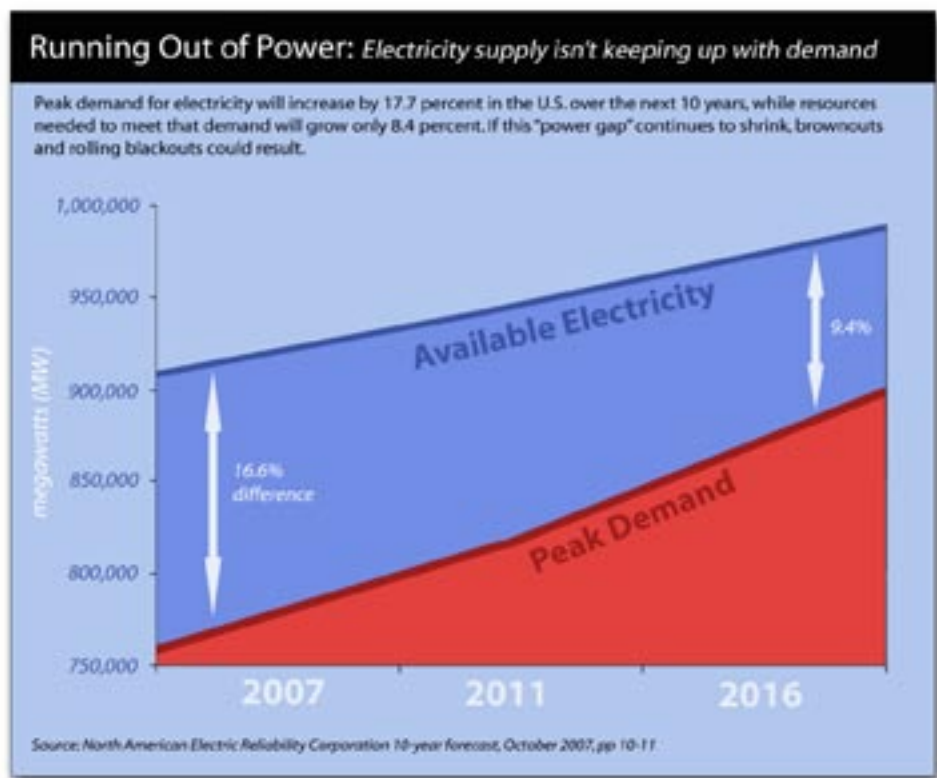
Regions affected include California, Rocky Mountain states, New England, Texas, the Southwest and Midwest. Other parts of our country could face a reliability gap a few years later. In western Canada, the problem could become apparent to consumers within two years.

In addition to the needed power supply, transmission line capacity (what’s needed to deliver the power) is projected to increase by a bit less than 9 percent in the United States – and by just 4.8 percent in Canada over the next 10 years.

All of this means that a sudden surge in weather-caused disruptions or a batch of construction delays could leave consumers facing immediate and recurring disruptions in their supply of electricity.

Glenn English, CEO of the National Rural Electric Cooperative Association based in Arlington, Va., believes the NERC study shows that the nation’s lawmakers and regulators must quickly come to grips with the difficult challenges of meeting future energy demand.

“The generation and transmission needed to supply everyone with electricity will get built,” says English. “Electric



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co-ops, as not-for-profit, consumer-owned utilities, have an obligation to serve. The issue is how we manage rising costs associated not only with the fuels needed to produce electricity and construction materials like steel, copper and concrete, but climate change as well. Policymakers must seek out solutions that are feasible technologically and can be sustained economically – remedies that will allow electric co-ops to continue providing reliable, affordable power in an environmentally responsible fashion.”

In its report, NERC examines other significant problems that could affect reliability. These include the need to attract well-trained younger workers to replace the aging workforce of electric utility professionals and how to deal with renewable energy concerns such as intermittency – the fact that wind only blows about 40 percent of the time and generally not on hot, humid weekdays in the summer when power consumption skyrockets and the sun doesn’t shine during nighttime hours.

“Beginning now, start doing everything you can to use electricity wisely,” NERC encourages consumers – such as

turning off lights when not in use, replacing old appliances and equipment with more energy-efficient models and managing electricity use carefully.

*Source: North American Electric Reliability Corporation, National Rural Electric Cooperative Association. Nancy S. Grant is a freelance writer based near Louisville, Ky., and is a member of the American Society of Journalists and Authors. Jennifer Taylor is writer of consumer and cooperative affairs at the National Rural Electric Cooperative Association.*