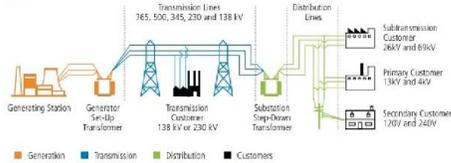


DOE warns 'modern life' threatened by terror, climate threats to electrical grid

Paul Bedard, Washington Examiner
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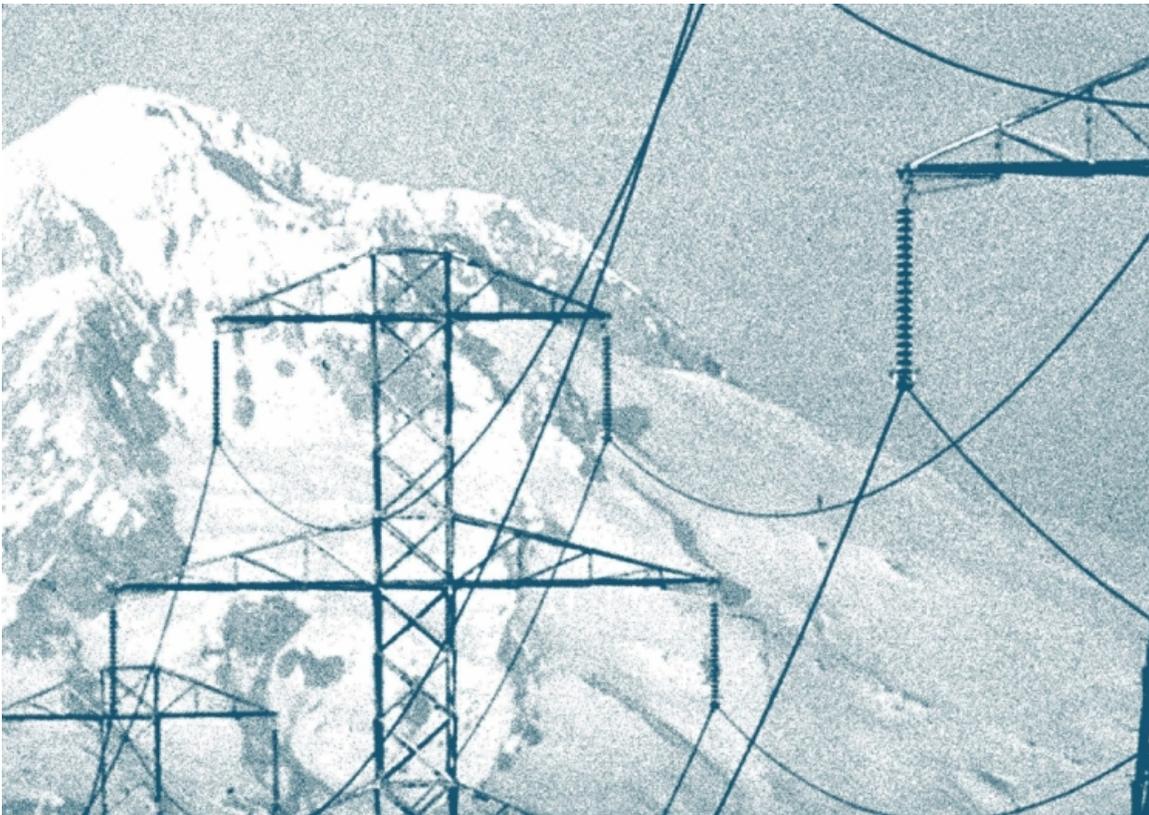
Figure 3-1. The Electric Grid*



Six components comprise the grid: four physical components, including generation, transmission, distribution, and storage; the information infrastructure to monitor and coordinate the production and delivery of power; and separate the grid and customer demand—the roles of power system operators and customers. New storage technologies could be deployed throughout the power system in the future.

The Department of Energy warns in a new report that the aging electric grid, which provides most electricity to the nation, faces threats from terrorism and storms caused by climate change that could knock out Wall Street, hospitals and the Internet if left unfixed.

A In the administration's first ever "[Quadrennial Energy Review](#)," the department suggests that modernization is a must and estimated the cost at updating just the grid of transmission and distribution lines at \$900 billion. Add in updating power plants, and the price reaches \$2 trillion.



The department has been warning of an "aging, inefficient, congested" electric grid for a decade. In recent years, fears of terrorism, climate change storms and even solar flares

have added to the list of concerns and prompted a national debate on protecting or modernizing the grid.

In the new report, the Energy Department warns that modern life could be endangered if the grid went down. A congressional report has warned that a solar flare or terrorist attack could darken the grid for a year, during which most of those supplied by the grid would die.

"Modernization of the grid has been made all the more urgent by the increasing and now virtually pervasive dependence of modern life on a reliable supply of electricity," said the just-issued Energy Department report.

"Without that, navigation; telecommunication; the financial system; healthcare; emergency response; and the Internet, as well as all that depends on it, become unreliable. Yet the threats to the grid — ranging from geomagnetic storms that can knock out crucial transformers; to terrorist attacks on transmission lines and substations; to more flooding, faster sea-level rise and increasingly powerful storms from global climate change — have been growing even as society's dependence on the grid has increased," the report said on page S-5.

The concerns are no joke. To reinforce concerns, the DOE report cited another report from the National Research Center titled, "[Terrorism and the Electric Power Delivery System](#)" that described the doom America would feel after an attack:

The electric power delivery system that carries electricity from large central generators to customers could be severely damaged by a small number of well-informed attackers. The system is inherently vulnerable because transmission lines may span hundreds of miles, and many key facilities are unguarded.

This vulnerability is exacerbated by the fact that the power grid, most of which was originally designed to meet the needs of individual vertically integrated utilities, is being used to move power between regions to support the needs of competitive markets for power generation. Primarily because of ambiguities introduced as a result of recent restricting of the industry and cost pressures from consumers and regulators, investment to strengthen and upgrade the grid has lagged, with the result that many parts of the bulk high-voltage system are heavily stressed.

Electric systems are not designed to withstand or quickly recover from damage inflicted simultaneously on multiple components. Such an attack could be carried out by knowledgeable attackers with little risk of detection or interdiction. Further well-planned and coordinated attacks by terrorists could leave the electric power system in a large region of the country at least partially disabled for a very long time.

Although there are many examples of terrorist and military attacks on power systems elsewhere in the world, at the time of this study international terrorists have shown limited interest in attacking the U.S. power grid. However, that should not be a basis for complacency. Because all parts of the economy, as well as human health and welfare, depend on electricity, the results could be devastating.

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