SERC Reliability Corporation

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VIA E-MAIL

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Mr. Wyatt Cash
Editor in Chief
Government Computing News

GCN Article A Western power 05/07/07; Vol. 26, No. 10

Dear Mr. Cash:

I wish to inform you of several incorrect statements and misleading conclusions presented in the referenced Government Computing News article related to a second Department of Homeland Security data center to complement the existing one located at NASA's Stennis Space Center in the coastal Mississippi area. The predominance of incorrect information in the article leads me to believe that the article was not well researched or substantiated.

The basic premise of the article promotes the concept that mission critical back up centers should be located in different electrical interconnections because that would minimize the risk of simultaneous failures. Sound engineering and historical experience provide no basis for such a conclusion.

The bulk power system in North America is a very complex, interconnected system; even the three major interconnections are themselves interconnected by DC ties. The interconnectedness of the system actually enhances reliability and economic benefits, rather than creating risks as suggested by the article, because the larger network is stronger and more stable and is better able to share electricity in times of shortages. Smaller interconnections, such as the one in Texas and the Western Interconnection, can at times be electrically less stable and are more prone to power shortages than the larger Eastern Interconnection.

There is no part of the North American bulk power system that has consistently demonstrated a more reliable electricity supply than the southeast. In the 37 years of existence of SERC as a reliability organization there has not been a wide-area cascading failure, even though that threat is the basic assumption of the article. The utilities in the southeastern region of the United States have always demonstrated a focus on customer service and reliability that far outweigh a hypothetical notion of cascading failures. The region is undistracted by organized electricity markets that have resulted in failures of a different kind in the other Interconnections. Investing in infrastructure and focusing on customer needs has been the mainstay of a strong, reliable electricity supply and delivery capability in the southeast.

An effective engineering study would in the case of the DHS data center planning conclude that the risks of concurrent electric system failures in southern Mississippi and Virginia caused by a cascading failure are so miniscule as to be insignificant compared to other everyday risks across the United States, such as earthquakes, hurricanes, tornados, acts of sabotage, none of which respect electric system boundaries.

A proper assessment of a customer's electricity reliability needs would ensure that either the supply provided by the utility was sufficient to meet the customer's needs, or the customer would provide (separately or working with the utility) for additional emergency sources to temporarily carry essential loads until offsite power is restored. This is a concept recognized by hospitals and government centers, and many other essential services entities. Contrary to the suggestion in the article that this approach does not work, it does work, including through the use of a very reliable fleet of diesel generators at nuclear plant facilities throughout the United States.

To make a significant business decision regarding the location of mission critical facilities in separate interconnections solely to avoid cascading failures and with no other considerations would be irresponsible.

In addition to reaching a misleading conclusion, in the article Mr. Dizard makes the following incorrect statements:

> The Stennis data center draws its power from utilities in the power pool run by SERC Reliability, formerly known as the Southeastern Electric Reliability Council. SERC includes power generators, transmission providers and related entities in the Southeast that link to the Eastern Interconnect, a group of eight regional reliability areas, or power pools, that exchange electricity for economic, pollution control and reliability purposes.

SERC Reliability Corporation is not a power pool and does not operate or control electric generators and transmission facilities in the southeast. SERC is an independent, nonprofit agency that oversees the reliability of the bulk power system in the southeast region by setting and enforcing reliability standards. We perform these functions, along with the other seven regions, under authorities delegated to us from the federal government in the U.S. We are not involved in the operation of facilities or the exchange of power in the Eastern Interconnection for any purposes, much less those listed.

> But some regional power failures in the past demonstrated that an equipment failure at even a single critical point in the electricity network can cascade to affect service across areas where tens of millions of people live.

While there have been several cascading failures in the over 100 year history of the North American electric system, none has occurred as the result of a single failure at a single point. Electric systems are very robust and are designed and operated to withstand component losses without cascading failures. It is only on the very rare occasion of multiple concurrent failures, typically with multiple causes, that wide-area failures can infrequently occur. As mentioned previously, no wide-area electric system failures have occurred in the southeast in SERC's 37 year history beginning in 1970.

> DHS wants to protect its planned new data center from the possibility of a cascading power failure that could bring down the entire Eastern Interconnect by choosing a site in the West for its second data center.

The likelihood of a cascading failure bringing down the entire Eastern Interconnection is zero – it's never happened in over 100 years.

> Both of the other interconnects are much more independent of each other and the Eastern Interconnect, a factor that helps lower the possibility of a nationwide power failure. The Texas Interconnect, in particular, has only a limited capacity to exchange power with the other interconnects, a feature that insulates it from a nationwide cascading outage.

As described previously, each of the other interconnections in North America carry their own risks, some from natural causes or market causes that are unrelated to the physics of electric system operation.

> But even the largest diesel-electric generators — such as those installed at nuclear power plants that are designed to kick in when a "station blackout" threatens to shut off all normal sources of electricity — don't run indefinitely.

Emergency back up supplies are not designed to run indefinitely. They have design criteria, as do the diesel generators at nuclear plants, to operate until offsite power supplies can be restored in the rare event of loss of offsite power.

In conclusion, the tenor of the article appears to prefer sensationalizing an unknown and unrealistic fear (failure of the entire power grid) rather than providing a rational discussion of considerations in providing a reliable electricity supply to mission critical facilities or backup facilities.