Texas is Working to Protect the Electrical Grid Against Natural or Man-Made Electromagnetic Pulse

Statement for the Record

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"Protecting the Electric Grid from the Potential Threats of Solar Storms and Electromagnetic Pulse"

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Chairman Johnson, Senator Carper and members of the committee, thank you for the opportunity to submit written comments about securing the electrical grid against solar storms and electromagnetic pulse. I am Allen B. West, president and CEO of the National Center for Policy Analysis (NCPA). We are a nonprofit, nonpartisan public policy research organization dedicated to developing and promoting private alternatives to government regulation and control, solving problems by relying on the strength of the competitive, entrepreneurial private sector. The NCPA is headquartered in Dallas, Texas.

Having recently moved to Texas, I am proud to report that the state of Texas is showing leadership on this issue by taking action to protect the Texas electrical grid from the damaging effects of a natural or man-made electromagnetic pulse (EMP) that could blackout the entire state for months, with catastrophic consequences. The Texas legislature is moving potential legislative solutions, and members of the Executive Branch have met with experts to determine the best course of action to protect the electrical grid in Texas.

EMP sounds like science fiction, but it is a real and present danger. EMPs have occurred numerous times with damaging consequences. As far back as 1859, an EMP from a solar storm disrupted telegraph systems throughout America and Europe. In 1921, a solar EMP knocked out railroad signals and switching systems. More recently, in 1989, a solar EMP shut down power transmission in Canada and jammed radio signals throughout North America.

The events of 1859, 1921 and 1989 ought to inform our decisions today. An EMP is like a super-energetic radio wave, so powerful that it can damage and destroy electronic systems within the EMP field. As the world has become more reliant on technology, if a solar EMP of similar magnitude were to occur today, it would potentially cause a protracted nationwide or even global blackout of the electrical grid and other life-sustaining critical infrastructures—including communications, transportation, business and finance, food and water—potentially for months or years.

NASA estimates the likelihood that the Earth will encounter a catastrophic solar storm is 12 percent per decade. This virtually guarantees that we will see a natural EMP catastrophe within our lifetimes or our children's lifetimes. It underscores the vital importance of protecting the electrical grid against solar EMPs.

But solar storms aren't the only sources of catastrophic EMPs. In 2006, Congress created the Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack. The EMP Commission warned that a nuclear weapon detonated at high-altitude, 300 kilometers above the United States (so high that there would be no blast, fallout, or other effects on the ground from the explosion in the atmosphere) would generate an EMP field over the entire nation. The EMP Commission estimated that a nationwide blackout lasting one year could kill up to 90 percent of Americans by starvation and societal collapse.

North Korea and Iran may have already practiced nuclear EMP attacks by orbiting satellites over the United States, simulating the delivery of an EMP. On a south polar trajectory, the satellites approach the United States from the south, passing over Texas and other states bordering on the Gulf of Mexico. Currently, the United States does not have ballistic missile early warning radars or missile interceptors facing south.

Even if the United States could intercept a warhead disguised as a satellite approaching from the south, the nuclear weapon could "salvage-fuse" by automatically triggering the EMP attack before being intercepted. The Gulf States, including Texas, would be closest to the EMP field, and most at risk.

Furthermore, North Korea and Iran may have also practiced nuclear EMP attacks delivered by short-range missiles. In July 2013, a North Korean freighter transited the Gulf of Mexico with two unarmed, but nuclear capable, SA-2 missiles mounted on their launchers, hidden in the hold. Additionally, Iranian freighters regularly visit their allies in Cuba and Venezuela and have the same potential to carry short-range missiles capable of causing a catastrophic EMP. Again, the Gulf States, including Texas, are most at risk from a ship-launched EMP attack.

Indeed, because Texas has its own electrical grid, and is not part of the Eastern or Western electrical grids that include all the other contiguous states, Texas might be most at risk – and at the same time, the only state in control of its own grid security. An adversary who wants to warn or terrorize the United States might well choose to focus an attack on the Texas grid to demonstrate their power to Washington and the world.

Non-nuclear EMP weapons, called radiofrequency weapons, can also damage or destroy the electrical grid. Terrorists have already employed such weapons in Europe and Asia. Boeing demonstrated such a weapon, called the Counter-electronics High-powered Microwave Advanced Missile Project (CHAMP), which is capable of being delivered by a drone. It is not out of the realm of possibility to imagine a terrorist launching something like a CHAMP from a freighter, or even from Mexico, to deliver a devastating EMP attack on the United States. Texas, once again, is forefront in the danger zone.

Terrorists have figured out that electrical grids are a major societal vulnerability. Terror attacks against the electrical grid have blacked-out 420,000 people in Mexico (October 2013), Yemen's 18 cities and 24 million people (June 2014), 80 percent of Pakistan (January 2015), and most of Turkey (April 2015). Prudence should warn us about the potential for a similar terror attack in the United States. The EMP Commission found that hardening the electrical grid to protect against the worst threat—nuclear EMP attack—would mitigate all lesser threats, including natural and non-nuclear EMP, cyber attacks, physical sabotage, and severe weather.

I am proud of the efforts of Texas state leaders like Representative Tan Parker, Representative Byron Cook, Senator Troy Fraser and Senator Bob Hall, himself an EMP expert, who are working to educate policy makers in Austin about the threat, a service to all Texans who do not want to be in the bull's-eye of an EMP Alamo. Texas Governor Greg Abbott and his administration have an amazing opportunity to take leadership on this important issue. Likewise, there is an important role for your committee and for Congress to take to harden the nation's electrical grid against the dangers of natural and man-made EMPs. The time to act is now.

Thank you for the opportunity to submit these comments. If there is anything the NCPA or I can do to assist you, we are at your service.