

Homeland Secure? Electrical Grid Vulnerable to EMP Attacks | The Media Freedom Foundation

Despite the billions poured into Homeland Security, one staple of American society remains unprotected: the electrical grid. One nuclear-tipped missile detonated at a height of 40-400 kilometers above ground could “degrade 70% of the nation’s electrical service, all in one instant,” according to a 2004 Department of Defense commission report.

The weakness lies in high voltage transformers across the nation, many of which are custom-made and extremely difficult to replace. When a nuclear device is activated at that altitude, “gamma rays from the explosion would interact with the atmosphere to produce pulses of electromagnetic energy.” These pulses would induce currents in wires and systems throughout the country, burning up those transformers that remained unshielded from the blast.

However, a nuclear weapon is not the only blast capable of producing wide spread electrical failure. Portable electromagnetic weapons, detonated at coordinated locations are also a threat. According to Physics Today, “Plans for such devices are available on the Internet, and the US Navy has demonstrated that they can be built with parts costing \$500.”

The third EMP (Electromagnetic Pulse) threat to the electrical grid is from geomagnetic and solar storms. A study from the 2008 National Academies workshop found that “historically large geomagnetic storms” could cause widespread power outages and damages “inflicting \$1 trillion- \$2 trillion in damage and requiring 4-10 years for full recovery.”

Shielding the grid is possible. However, the Obama administration’s plan for a “smart grid,” which would allow power companies to adjust the ebb and flow of electricity according to demand, does not provide for EMP protection. Estimates determine that adding protection to new smart-grid components will add anywhere from 2%-10% of their cost. As for the rest of the grid, one company, Advanced Fusion Systems LLC, has developed switches that could “shield a typical substation for \$1.5 million, or roughly 10% of the substation’s cost.”

Sources:

Physics Today, September 2009

“U.S. Electricity Grid Still Vulnerable to Electromagnetic Pulses”

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