



# Critical Threats to U.S. Security

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## I. Introduction

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The USA faces many serious threats, including economic collapse, terrorism, Islamization, socialism, and societal breakdown. ***None, however, are as immediately devastating as a major attack on our electric supply grid!*** This has the potential to cripple the whole country for an indefinite period. Moreover, an attack would not be difficult to execute—and we are woefully unprepared.

## II. What are the Threats to the Electric Grid?

**# EMP.** A relatively low-yield thermonuclear device detonated one hundred to three hundred miles above Kansas can be tuned to generate sufficient gamma radiation to produce a nation-wide electromagnetic pulse (EMP). The three main components (so-called E1, E2, and E3 effects) would destroy most electronics, including control systems within the grid (so-called SCADAs) and most transformers. The major transformers would take over a year to replace (in normal times) and are no longer manufactured in the USA. With the electric grid crippled, other critical infrastructures such as water, natural gas, sewerage, communications, food delivery, and banking would also be disabled. Most cars and domestic appliances would not function. Starvation, disease, and civil breakdown would quickly follow. Authorities estimate that 90% of the population would be dead within the first year. Some within Congress and the Pentagon cited William Forstchen's novel, *One Second After*, as a realistic scenario of this event that all citizens should read.

**# Hacking/Cyber Attack.** This real threat has been experienced on a relatively small scale in parts of the U.S. and Canada. The concern is that these small (but serious) attacks could have been a practice run for the "real thing." While the immediate effects of a major, coordinated hacking/cyber-attack would not be as widespread as with an EMP, the overall devastation could be similar.

**# Physical Attack.** In April 2013, terrorists disabled the California Metcalf transformer substation with rifle fire. It could have been a trial run for larger coordinated small-arms attacks. Coincidentally on the same day, North Korea flew its KSM-3 satellite on an optimal track for launching a surprise EMP attack on the U.S. It has been estimated that if as few as nine critical transformers across the country were disabled, the whole grid could become inoperable.

**# Extreme Weather.** A major solar flare (coronal mass ejection), for example, creates the "E3" component of an EMP that would destroy transformers, crippling the electric grid.



### III. What are the Solutions?

**# Pray!** We have had Divine protection to date! However, it is our duty as a society to provide for our own defense, seeking God-given wisdom.

**# Provide Appropriate Military Protection.** The SDI (Star Wars) shield built during President Reagan's term to counter threats from the north (Russia) is no longer adequate for modern-day threats. A current attack will likely come from the south where we have no credible means of interception. A satellite launched by North Korea would likely orbit from the south and could easily carry a devastating EMP device. An effective EMP attack on the U.S. could also be launched from a disguised container ship in the Gulf. A North Korean freighter carrying missile components hidden under bags of sugar was recently intercepted approaching the Panama Canal. Other antagonists include Iran, China, and non-country-specific terrorist groups.

It is imperative that the U.S. has a powerful military capability that our potential enemies fear and believe will be deployed against them if necessary. Right now they question our military capability and resolve to use it.

**# "Harden" the Grid.** This refers to protecting the grid against all possible attacks, including physical (e.g. coordinated small-arms attacks). The U.S. national grid has expanded over the decades in a piecemeal way. Many components, including major transformers, are nearing the end of their design-life. The electric grid is fragile and vulnerable!

The power industry has shown little interest in hardening the grid. It seems that the power companies, their regulatory body, FERC (Federal Energy Regulatory Commission), and trade body NERC (North American Electric Reliability Corporation), have mutual financial interests in not increasing the reliability of the grid.

The Congressional EMP Commission estimated robust protection of the national grid would cost a one-time payment of two billion (the annual foreign aid to Pakistan). FERC has estimated that the extra cost to the average utilities customer to harden the grid would be twenty cents per year. Resistance is political as well as financial. Approved bills to protect the infrastructure have been blocked before implementation.

Even with the electric grid fully "hardened," it would be of limited value unless the other key utilities—water, natural gas, communications, and sewage—are also hardened or capable of service in a primitive fashion (i.e. with pumps/compressors operated manually without electronic controls and instrumentation).

Nuclear plants need special consideration in the event of an EMP. This includes fail-safe control of the nuclear reaction and provision of long-term cooling water to the "turned-down" nuclear core and spent fuel pools.



The total cost of ensuring a primitive but functional infrastructure is likely to be much more than two billion—but unquestionably worth spending!

There is much information on the science behind EMPs, solar flares, the resulting catastrophe, and who is doing or has done what. Other than generalities, there is little information freely available about what “hardening the grid” involves, such as the use of Faraday cages, massive chokes, suppressors, and so on. Is this because the specialist power engineers know that protection is more extensive, complex, and expensive than is generally accepted? Further, even with extensive hardening, a major EMP or similar event would still devastate the U.S. However, the effect would be diminished and easier to recover from than if nothing was done.

**# Emergency Preparedness.** Citizens have rightly been encouraged to prepare for contingencies, such as economic breakdown and short-term power outages. However, a major infrastructure collapse of this magnitude is more serious and difficult (impossible?) for individual citizens to adequately prepare for.

#### **IV. What is being done about it and by whom?**

NORAD (North American Aerospace Defense Command) has moved its headquarters back to an underground base in Cheyenne Mountain, Colorado to protect it from an EMP, but little has been done to protect the civilian population. The U.S. Department of Defense has known how to protect military systems from EMPs for fifty years.

A number of non-government activist groups comprising ex-military, ex-diplomatic, ex-CIA, and other leaders are working on the problem. An example is South Carolina-based High Frontier, which has operated for over three decades and provides a weekly newsletter, runs conferences, and petitions government.

There have been three Congressional EMP Commissions—2004, 2008, and now, 2016.

Numerous acts have been passed, one of the latest being S1846, the Critical Infrastructure Protection Act of 2015.

States like Maine, Virginia, Arizona, Florida, Oklahoma, and Texas are talking about hardening their grids.

***Despite this, the bottom line is that virtually nothing has actually happened to reduce the threat!!!***

The reasons for the inaction seem primarily political, financial, and the self-interest of the electric supply industry.



## V. Recommendations

# Leaders and Members of the Oak Initiative implore the new President to give priority to protecting our electric grid and other key Infrastructure components from natural and man-made attacks.

# A commission with teeth, urgency, and the necessary expertise needs to be established and launched. Expertise should include electrical, rotating machinery, nuclear, control, structural, and process engineers.

# Findings need to be put into law and all parties obliged to implement the recommendations in strict accordance with the agreed fast-track, but with realistic scope of work, schedule, and budget. As with all critical and complex projects, leadership is the key and should be drawn from the private sector.

# Set up islands of recovery with power, workshop facilities, and tradesmen. This could be a great opportunity to employ non-working (but off the unemployment statistics) citizens in useful infrastructure work (as in FDR's New Deal). They would be available to call into action with their already learned skills in times of disaster.

For further information or clarification on this topic, please contact the Oak Initiative at [office@theoakinitiative.org](mailto:office@theoakinitiative.org) or 803.547.8217.

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**Dave Phelps** was born in England and is a retired Chartered Mechanical Engineer (similar to a U.S. Professional Engineer). He spent much of his career in the process and oil industries and held leadership positions in design, manufacturing, operations, project management, and new product development. As a Global Product Development Manager for a Fortune 500 company, Dave developed and commercialized numerous world-class multimillion-dollar product lines. Now a U.S. citizen, Dave and his wife live in Fort Mill, SC. They have two grown daughters.

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