

The Honorable Nikki Haley  
Governor of South Carolina  
1205 Pendleton Street  
Columbia  
SC 29201

8020 Huber Lane  
Fort Mill  
SC 29715

March 16, 2016

Dear Governor Haley,

### **Critical Threats to US Security**

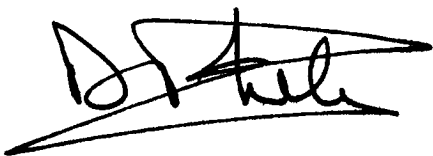
I respectfully bring to your attention a matter of great National importance.

The USA faces many serious threats including: economic collapse, terrorism, Islamization, socialism and societal breakdown. ***None of these, however, is 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 that difficult to execute - and we are woefully unprepared.

I wrote the attached document 'Critical Threats to US Security' for The Oak Initiative [www.theoakinitiative.org](http://www.theoakinitiative.org) of which I am a member. It is an attempt to explain the threats, summarize solutions, explain what is actually being done and present recommendations – in a succinct manner.

I will be pleased to clarify any points and provide more detailed information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dave Phelps', with a long horizontal line extending from the end of the signature.

Dave Phelps

[dave@phelps.net](mailto:dave@phelps.net)  
803 322 9881



The Oak Initiative

# Critical Threats to US Security

By Dave Phelps, C Eng. MI Mech E; Eur Ing  
Chartered Engineer,

## I. Introduction

February 2016

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 that difficult to execute - and we are woefully unprepared.

## II. What are these threats to the electric grid?

# **EMP.** A relatively low-yield thermonuclear device, detonated 100 to 300 miles above Kansas say, could 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 SCADA's) 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 US and Canada. Concerns are 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, N. Korea flew its KSM-3 satellite on an optimal track for launching a surprise EMP attack on the US. 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 Strategic Defense Initiative (SDI) 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 N. Korea would most likely orbit from the south and could easily carry a devastating EMP device. An effective EMP attack on the US 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 US 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 our resolve to use it.

**# 'Harden' the Grid** This refers to protecting the grid against all possible attacks including physical (eg. coordinated small-arms attacks). The US National Grid has expanded over 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 20¢ 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 at least capable of being put into 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 even 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 EMP's and solar flares, the resulting catastrophe, and who is doing or has done what. There is little information freely available about what 'hardening the grid' actually involves other than generalities such as the use of Faraday cages, massive chokes, suppressors and so on. Is this because the specialist power engineers know that protection is much more extensive, complex and expensive than is generally accepted? Further, even with extensive hardening, a major EMP or similar event would still devastate the US. However, the effect would be diminished and it would be 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 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 US Department of Defense has known how to protect military systems from EMPs for 50 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 'Critical Infrastructure Protection Act of 2015.

States including Maine, Virginia, Arizona, Florida, Oklahoma, 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 to be 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 involved parties obliged to implement the recommendations in strict accordance with the agreed fast-track, but realistic scope of work, schedule and budget. As with all critical and complex projects, leadership is key – and should be drawn from the private sector.
- # Set up Islands of Recovery, ready in place 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 Dave Phelps at The Oak Initiative:  
[dave@phelps.net](mailto:dave@phelps.net) cell - 803 322 9881

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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 Trudy live in Fort Mill, SC. They have two grown daughters.

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