Doing something about space weather

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By Frank Gaffney, Jr.

A wit once observed a persistent truth: "Everybody talks about the weather, but nobody does anything about it." That has been especially the case with respect to "space weather" – a phenomenon associated with intense solar activity, known by scientists as coronal mass ejections and popularly as solar flares. If oriented in the wrong direction, one of these flares could blanket much of the earth with devastatingly powerful bursts of energy known as electromagnetic pulse (EMP).

As I noted in this space on May 21st (http://www.washingtontimes.com/news/2013/may/21/the-night-that-all-the-lights-go-out/?page=all), the effects of such naturally occurring EMP could be comparable to those that might be inflicted by enemies detonating nuclear weapons high above the atmosphere over the United States. National Geographic dramatically portrayed what would happen to our country as a result in a 2010 special entitled "Electronic Armageddon" (http://channel.nationalgeographic.com/channel/videos/bitbop-template-4-ngc-longform-others-no-tivo/).

Drawing upon official studies and sources, National Geographic documented how – all other things being equal – the likely consequences would include serious damage to and extensive, sustained disruption of the nation's electric grid. That would result in cascading failures of the various infrastructures that depend critically on electricity, which is to say virtually everything in 21st Century America: Food, water, sewage, medical, communications, transportation, finance, commerce, etc.

The latest study of our vulnerability to EMP from space weather was conducted for Lloyds of London by Atmospheric and Environmental Research. It set out to assess what would happen if we were subjected to solar flaring comparable to that of an 1859 sun storm known as the Carrington Event – the sort of severe space weather that seems to occur roughly every 150 years. (That would put us approximately four years overdue for such an event.)

The researchers appear, however, to have used levels of sun-induced EMP closer to those associated with a 1989 space storm that took down the Quebec grid in ninety-seconds. These involved electromagnetic pulses that were actually four-times *less powerful* than those first correlated a century-and-a-half ago by British scientist Dr. Richard Carrington with fires in telegraph stations and lines across the northern latitudes of his country and ours.

Even so, the Lloyds-AER team's conclusions were bad enough. They estimate that such solar flaring would deny power to roughly 20-40 million Americans along the Eastern seaboard between Washington, D.C. and New York City. According to this analysis, their lights would be off for between 16 days and 2 years and the costs of remediation would run between $600 billion and $2 trillion. These costs, of course, are just of the financial type. The cost in lives needlessly lost could be staggeringly high as well. There is, of course, no way to remediate the latter, predictable and genocidal effects of such an EMP-precipitated catastrophe.

Fortunately, somebody *is* trying to do something about space weather — or at least its potential impact on our country. These include the following initiatives:

O On June 18th, the House EMP Caucus led by Reps. Trent Franks (R-Arizona), Yvette Clark (D-New York) and Doug Lamborn (R-Colorado) will hold an event on Capitol Hill featuring a man who has long understood and warned about the EMP threat: Newt Gingrich. The former House Speaker's remarks will kick-off an effort to enact the "Secure High-voltage Infrastructure for Electricity from Lethal Damage" (SHIELD) Act – legislation designed to ensure that, at a minimum, the roughly 300 transformers that make up the backbone of America's electric grid are quickly hardened against electromagnetic pulse effects.

O Earlier this month, at the initiative of State Rep. Andrea Boland, the State of Maine became the first in the country to adopt legislation calling for the "islanding" of its grid, so as to ensure its continued viability in the event EMP takes down the rest of New England's electric infrastructure. It is to be earnestly hoped that, once again, "as Maine goes, so goes the nation" with other states emulating this effort to adopt grid-hardening measures that the federal government has failed to date to inaugurate.

O Another hugely important development is the focused engagement of Lloyds of London and the leaders of other industries that have come to recognize they will have incalculably large exposures if there are preventable disruptions in the supply of electricity – especially for protracted periods of time. It would be extremely helpful if other businesses, notably the private utilities that own elements of the grid and, therefore, must be part of any solution to its current vulnerabilities, were incentivized by insurers' premiums policies to become more resilient.

Fortunately, the costs of protecting the transformers that make up the critical nodes of our electric grid are trivially small compared to those associated with trying to recover from an EMP-induced disaster. According to a presentation at the recent, enormously impressive Electric Infrastructure Security Summit (http://www.eiscouncil.com/), if they were passed along to rate-payers, it would amount to a one-time charge of an additional 50-cents per customer.

The time has arrived for all of us to *do* something about the impending EMP calamity by urgently undertaking practical, constructive measures – so that we are not reduced to talking about what might have been done about space weather *after* it destroys our country.