

Do You Feel Lucky? The Danger of EMP

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In 1987, Ronald Reagan mused that, if the world were about to be devastated by an alien force – perhaps a collision with a large asteroid, peoples of all nations, ideological persuasions and political parties would come together to save the planet and our civilization. We may be about to test that proposition.

At the moment, no asteroid is known to be hurtling our way. But a naturally occurring phenomenon is, one that may be as fatal for modern industrial societies and for the quality of life they have made possible – thanks principally to electrification. The technical term for this threat is geomagnetically induced currents (GMIC) generated by the coronal mass ejections (CMEs) that laymen call solar eruptions or flaring.

Think of it as “space weather.” And there is a strong possibility that some of the heaviest such weather in hundreds of years is headed our way.

GMIC engenders intense bursts of electromagnetic energy. No fewer than five studies mandated by the executive or legislative branches have confirmed that such electromagnetic pulse (EMP) is lethal for the electronic devices, computers and transformers that power everything in our 21st Century society. Since these things are generally unprotected against EMP – whether naturally occurring or man-induced, they would almost certainly be damaged or destroyed. The U.S. electrical grid could, as a result, be down for many months, and probably years.

We know that this EMP-precipitated effect could also be achieved by the detonation of a nuclear weapon high over the United States. And actual or potential enemies of this country – notably Russia, China, North Korea and Iran – understand our acute vulnerability in this area, and have taken steps to exploit it.

“Catastrophic” is a term often used to describe the repercussions for our country of the cascading shut-down, first of the key elements of the grid, then inexorably, all of the electricity-dependent infrastructures that make possible life as we know it in this country. That would include those that enable: access to and distribution of food, water, fuel and heat; telecommunications; finance; transportation; sewage treatment and cooling of nuclear power plants.

President Reagan’s Science Advisor, Dr. William Graham, who chaired a blue-ribbon congressional commission on the EMP threat, has calculated that within a year of the U.S. electrical grid being devastated by such a phenomenon, nine out of ten Americans would be dead.

Did that get your attention? Or, as Dirty Harry would say, do you feel lucky?

Unfortunately, – any more than we could if we knew an asteroid were headed our way. Persisting in our present state of vulnerability is an invitation to disaster, if not at the hands of some foe, then as a result of the cycle of intense solar storms in which we now find ourselves.

The good news is that there are practical and affordable steps we can take to mitigate these threats, if only we have the will and the wit to adopt them *before* we are hit by heavy space weather or its man-caused counterpart.

The present danger and our options for defending against it will be the subject of an extraordinary conference in Washington this week: the Electric Infrastructure Security Summit. Many of the nation's foremost authorities on EMP will participate, including: bipartisan champions of this issue in Congress; nuclear physicists and other experts; executive branch officials from the Federal Electric Regulatory Commission (FERC) and Department of Homeland Security; and representatives from the quasi-governmental North American Electric Reliability Corporation (NERC) and from the utilities industry.

The single biggest challenge to date has been the lack of public awareness of the EMP peril. This is particularly ironic since a television program envisioning life in America after the lights go out, NBC's "Revolution," has been quite popular. But most viewers seem to think the precipitating event is the stuff of science fiction. An intensive effort is needed now to disabuse them of this comforting, but unfounded notion, and to enlist them in the corrective actions that are necessary on an urgent, bipartisan and nation-wide basis.

To that end, some discernible progress is being made. For example, on May 16th, at the instigation of Federal Energy Regulatory Commissioner Cheryl LaFleur, the FERC issued a final rule that, in the words of the trade publication *Power Magazine*, "orders the North American Electric Reliability Corporation to develop, by the end of the year, reliability standards that address the impact of geomagnetic disturbances (GMD) on the nation's bulk power system."

The Maine state legislature is poised to adopt legislation that would require the FERC to submit a plan by the end of June to insulate Maine's grid from that of the rest of the Northeastern states and harden it against EMP. This measure could serve as model for similar state-level initiatives elsewhere and help catalyze counterpart legislation at the federal level along the lines of that introduced in the last session of Congress by Representatives Trent Franks (R-AZ) and Yvette Clarke (D-NY), dubbed the Secure High-voltage Infrastructure for Electricity from Lethal Damage (SHIELD) Act.

Important and necessary as these measures are, they are not sufficient to contend fully with the urgent threat our country is now facing. We are on a collision course for catastrophe of a magnitude, if not exactly of a kind, with that that could be inflicted by the kind of dangerous asteroid President Reagan envisioned decades ago. There is simply no time to waste in joining forces and implementing the steps needed to ensure we are not counting on luck to keep America's lights on.