

# Scientist to Congress: U.S. risks 'catastrophe' in nuke EMP attack

Expert says growing threat posed by Russia, China,  
North Korea, Iran, terrorists

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WASHINGTON – A top scientist today warned the House Armed Services Committee America remains vulnerable to a "catastrophe" from a nuclear **electromagnetic** pulse attack that could be launched with plausible deniability by hostile rogue nations or terrorists.

William R. Graham, chairman of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack and the former national **science** adviser to President Reagan, testified before the committee while presenting a sobering new report on "one of a small number of threats that can hold our society at risk of catastrophic consequences."

It is the first report from the commission since 2004 and identifies vulnerabilities in the nation's critical **infrastructures**, "which are essential to both our civilian and military capabilities."

Not taking the steps necessary to reduce the threat in the next

three to five years "can both invite and reward attack," Graham told the committee.

The scariest and most threatening kind of EMP attack is initiated by the detonation of a nuclear weapon at high altitude in the range of 25 to 250 miles above the Earth's surface. The immediate effects of EMP are disruption of, and damage to, electronic [systems](#) and electrical infrastructure. Such a detonation over the middle of the continental U.S. "has the capability to produce significant damage to critical infrastructures that support the fabric of U.S. society and the ability of the United States and Western nations to project influence and military power," said Graham.

"Several potential adversaries have the capability to attack the United States with a high-altitude nuclear weapon-generated electromagnetic pulse, and others appear to be pursuing efforts to obtain that capability," said Graham. "A determined adversary can achieve an EMP attack capability without having a high level of sophistication. For example, an adversary would not have to have long-range ballistic missiles to conduct an EMP attack against the United States. Such an attack could be launched from a freighter off the U.S. coast using a short- or medium-range missile to loft a nuclear warhead to high altitude. Terrorists sponsored by a rogue state could attempt to execute such an attack without revealing the identity of the perpetrators. Iran, the world's leading sponsor of international terrorism, has practiced launching a mobile ballistic missile from a vessel in the Caspian Sea. Iran has also tested high-altitude explosions of the Shahab-III, a test mode consistent with EMP attack, and described the tests as successful. Iranian military writings explicitly discuss a nuclear EMP attack that

would gravely harm the United States. While the commission does not know the intention of Iran in conducting these activities, we are disturbed by the capability that emerges when we connect the dots."

Graham reminded the committee even smaller nuclear weapons can create massive EMP effects over wide geographic areas. He also pointed out that United Nations investigators recently found that "the design for an advanced nuclear weapon, miniaturized to fit on ballistic missiles currently in the inventory of Iran, North Korea and other potentially hostile states, was in the possession of Swiss criminals affiliated with the A.Q. Khan nuclear smuggling network."

Theoretically, an EMP attack is devastating because of the unprecedented cascading failures of major infrastructures that could result. Because of America's heavy reliance on electricity and electronics, the impact would be far worse than on a country less advanced technologically. Graham and the commission see the potential for failure in the financial system, the system of distribution for food and water, medical care and trade and production.

"The recovery of any one of the key national infrastructures is dependent upon the recovery of others," he said. "The longer the outage, the more problematic and uncertain the recovery will be. It is possible for the functional outages to become mutually reinforcing until at some point the degradation of infrastructure could have irreversible effects on the country's ability to support its population."

Graham took the EMP debate out of the realm of science fiction by reminding the committee that as recently as May

1999, during the NATO bombing of Yugoslavia, Russian leaders threatened a U.S. congressional delegation with the specter of such an attack that would paralyze the U.S.

He also quoted James J. Shinn, assistant secretary of defense for Asian and Pacific [Security](#), who two weeks ago told the same House committee that China's arms buildup includes exotic experiments with electromagnetic weapons that can devastate electronics with bursts of [energy](#) similar to those produced by a nuclear blast.

"The consequence of EMP is that you destroy the communications network," Shinn said. "And we are, as you know, and as the Chinese know, heavily dependent on sophisticated communications, satellite communications, in the conduct of our forces. And so, whether it's from an EMP or it's some kind of a coordinated [anti-satellite] effort, we could be in a very bad place if the Chinese enhanced their capability in this area."

Graham says terrorists who get their hands on one or a few unsophisticated nuclear weapons might well calculate they could get the most bang for their buck from attempting an EMP attack.

Recovery from a widespread EMP attack could take months or years, Graham warned. The fact that key components of the U.S. electrical grid are not even manufactured in America and must be ordered a year in advance from foreign suppliers suggests just how complicated and time-consuming recovery might be. The high state of automation within America's utilities further complicates recovery. There just might not be sufficient trained manpower available to get the job done in a

timely way.

"The commission's view is that the federal government does not today have sufficient human and physical assets for reliably assessing and managing EMP threats," said Graham. "The commission reviewed current national capabilities to understand and to manage the effects of EMP and concluded that the U.S. is rapidly losing the technical competence and facilities that it needs in the government, the national [laboratories](#) and the industrial community."

Graham said it's not too late for Congress to take the bull by the horns and take the steps necessary to prepare for the threat – and thereby reduce it.

"A serious national commitment to address the threat of an EMP attack can lead to a national posture that would significantly reduce the payoff for such an attack and allow the United States to recover from EMP, and from other threats, man-made and natural, to the critical infrastructures," said Graham.

Graham's predecessor as chairman of the commission had equally tough words on the impact of the EMP threat.

"Their effects on systems and infrastructures dependent on electricity and electronics could be sufficiently ruinous as to qualify as catastrophic to the nation," Lowell Wood, acting chairman of the commission, told members of Congress in 2005.

The commission's previous report went so far as to suggest, in its opening sentence, that an EMP attack "might result in the defeat of our military forces."