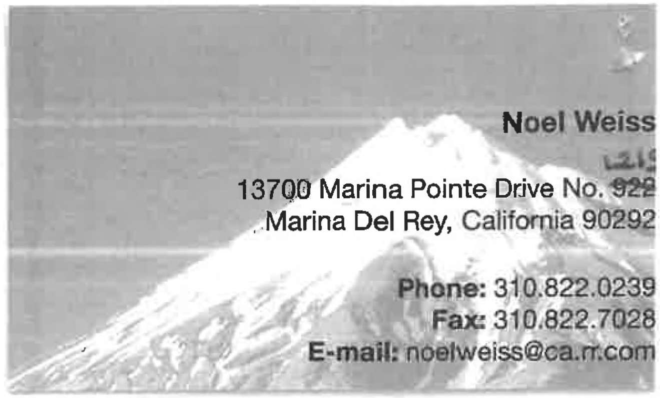
Los Angeles Department of Water & Power #2



February 23, 2015

The Honorable City Council
c/o Office of the City Clerk
Room 395, City Hall
Mail Stop 160

Attention: Councilmember Felipe Fuentes
Chair, Energy and Environmental Committee

Honorable Members:

Subject: Los Angeles City Council (Council) File No. 14-1690, Los Angeles Department of Water and Power's (LADWP's) Report on Security Practices Related to Power Grid Vulnerabilities

This is in response to the Energy and Environment Committee's Motion (Council File No. 14-1690), dated December 9, 2014, which addresses a request to report on security practices related to power grid vulnerabilities, including:

- The degree to which the electric utility properties and equipment (the power grid) are subject to damage from these vulnerabilities, the time spans and costs necessary for repair of such damage, and the impact such damage would inflict on the ability of the citizens, businesses, and governmental agencies to function in support of life, health, public safety, and economic advancement of the City of Los Angeles (City) and surrounding region;

- The standards used to prepare or protect the power grid from such vulnerabilities;

- The methods available to prepare or protect the power grid from such vulnerabilities, their costs, and their feasibilities;

- Practical and safe guidance as to how an individual utility customer, or a neighborhood, may be able to prepare for such emergencies as the inability of the LADWP to maintain service in the event of failures caused by these vulnerabilities, and how the City could contribute to individual or neighborhood preparations;

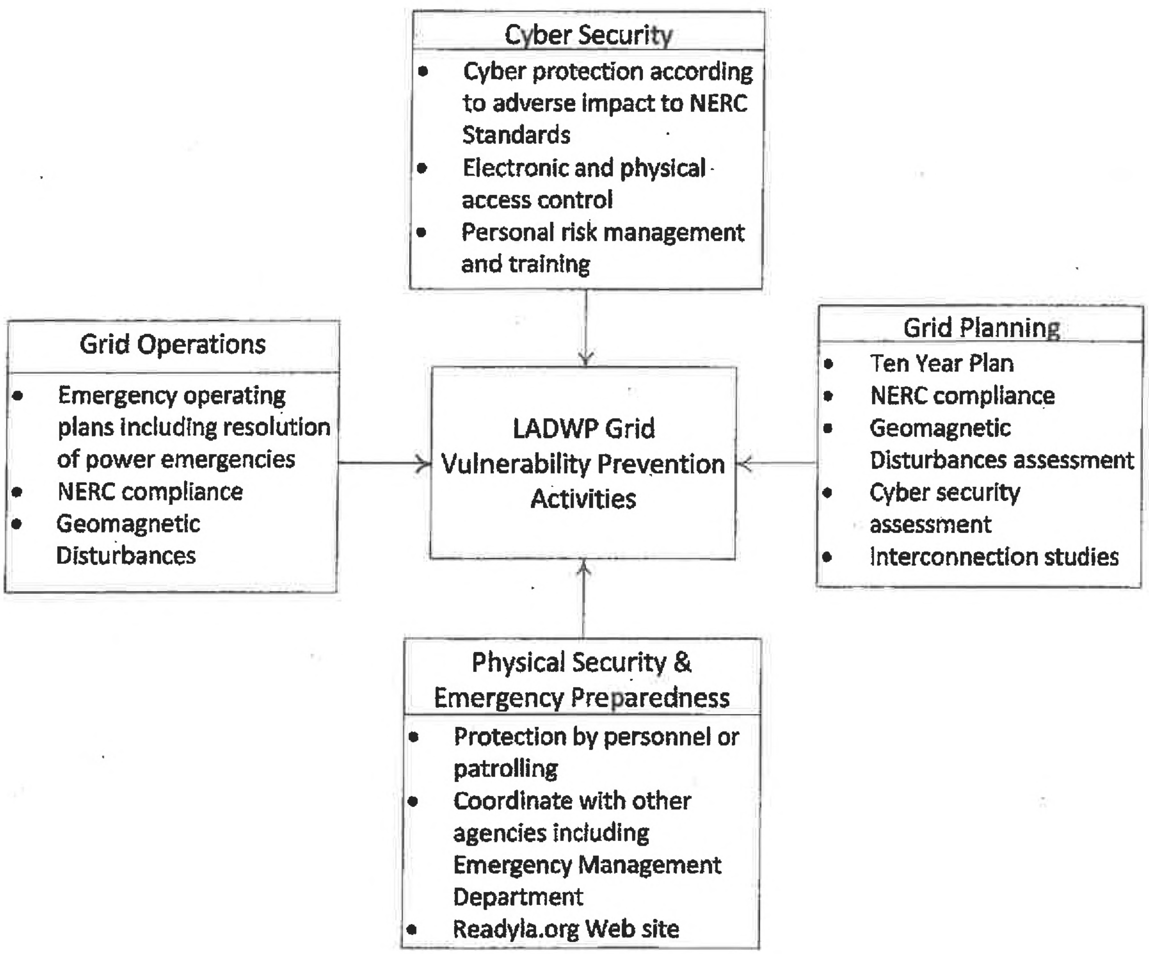
- A comparison of the relative grid security and safety to residents of LADWP's service area by providing local renewable distributed generation sources and microgrids versus central station out-of-basin power generation.

LADWP – A Summary on Power Grid Reliability

The motion requests information on potential vulnerabilities LADWP power grid, and activities to prevent impacts to the reliability of the power system.

LADWP adheres to the reliability standards that are developed by NERC and mandated by FERC. These standards include the protection of critical infrastructure, including measures of cyber security.

While national and regional operating standards require certain levels of confidentiality on these topics, the LADWP's approach is explained in accordance to those security standards and how they apply to reliability of the power grid. The following is a description of the functions of four entities at LADWP that work to prevent or reduce power grid vulnerabilities:



Grid Planning and Development (Grid Planning)

LADWP performs assessments each year to model and evaluate the operating conditions of the transmission system for the next 10 years. Included in those studies are a variety of scenarios that could impact the transmission system such as high temperatures or transmission line outages. These studies demonstrate the redundancy and robustness of the LADWP transmission system. It will continue to provide power to its customers despite experiencing some outages at the transmission level. These studies are technically rigorous and are performed by LADWP engineering and operations staff in accordance with national and regional electric utility reliability standards. The LADWP is accountable to these reliability agencies including, the North American Electric Reliability Corporation (NERC) and the Western Electricity Coordinating Council (WECC).

From these studies, the LADWP is able to identify any necessary short- or long-term upgrades on the transmission lines to continue providing power to its customers. LADWP also performs interconnection studies for new business projects and coordinates with neighboring utilities for any potential impacts or disturbances to the system.

In addition to studying the various transmission lines, LADWP also performs risk assessments of the LADWP transmission stations (existing and planned to be in service within 24 months) that are deemed critical to the reliability of the system. This study is performed based on the requirements and guidance of the recently approved NERC Physical Security Standards. These standards are identified under the NERC's Critical Infrastructure Protection (CIP) rules.

In addition, LADWP is working with NERC and WECC organizations in the development of reliability standards that address the potential impact of geomagnetic disturbances (GMDs) on the high voltage power system. Due to the geographical location of LADWP in the more southern latitudes, the probability of a GMD event occurring in LADWP facilities is extremely low, if any; however, LADWP complies with the requirements of NERC Reliability Standards associated with impacts of GMD events.

Grid Operations

The LADWP operates the Bulk Electric System (BES) in compliance with all NERC and WECC Standards. Specifically, NERC Standard EOP-001 requires LADWP to develop, maintain, and implement a set of plans to mitigate (prevent or remedy) operating emergencies. NERC Standard TOP-004 requires LADWP to operate within System Operating Limits at all times so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single contingency or from multiple contingencies as specified by its Reliability Coordinator.

The LADWP Capacity and Energy Emergency Plan is written in order to promote the safe and reliable operation of the power system and to provide a guide for actions following system disturbances including equipment failure and power overloads. This plan is reviewed each calendar year or more frequently, where required or needed. Load dispatching personnel receive Emergency Operations training on all aspects of the plan yearly or more frequently as required by NERC and WECC Standards.

A NERC Standard EOP-010 deals with GMD and details the operating response in the event of a GMD.

LADWP Cyber Security

LADWP adheres to the CIP Reliability Standards developed by NERC and mandated by Federal Energy Regulatory Commission (FERC). These standards support the reliable operation of the BES by protecting associated cyber systems from threats and vulnerabilities. LADWP has taken several measures to prevent or mitigate potential cyber attacks.

Personnel risk assessment, training, and security awareness help minimize the risk against compromise from individuals who have access to cyber assets. Electronic and physical access is controlled and monitored. Strong technical and operational procedures enhance system security. A cyber security incident response plan is in place to mitigate a potential incident and expedite the recovery of reliability functions.

Sensitive cyber system information is protected from unauthorized access through security management controls and reviews. A multi-layered approach is used to protect transmission stations, substations, generation resources, special protection systems, and control centers. Security management controls establish responsibility and accountability to protect these systems. LADWP's Cyber Security Program continues to mature as the NERC CIP Standards are updated and the industry develops new methods to mitigate and prevent cyber attacks.

LADWP is in regular communication with NERC, WECC, and the electric utilities on current cyber events and cyber security matters.

LADWP Physical Security and Emergency Preparedness

The LADWP Security Services Division is responsible for the protection of the physical security of the power grid which includes generation stations, receiving and distribution stations, transmission lines, solar farms and wind farms. Security Services either posts personnel at these locations or conducts patrols utilizing vehicles or helicopters to prevent unauthorized intrusions or spot suspicious activity. Additionally, Security Services monitors video and alarm feeds from local and remote cameras to identify and respond to crimes in progress.

Security Services continually coordinates with local law enforcement for extra patrol and to ensure a rapid response to unfolding situations. In addition to working with local law enforcement, they also coordinate with the United States Department of Homeland Security and Federal Bureau of Investigation to monitor threats against the Power System and ensure a comprehensive investigation is conducted when a crime or attack occurs against LADWP assets.

The cost of compliance with the security measures are embedded in the ongoing operation and maintenance activities.

Guidance to Customers

With respect to providing practical and safe guidance to our customers so they are able to prepare for emergencies related to loss of power, the LADWP Office of Emergency Management works closely with the City Los Angeles Emergency Management Department. LADWP reminds all customers and residents of the City to visit the Readyla.org Web site. This site provides information related to having a disaster plan that addresses the possible hazards and disasters that may affect Los Angeles. In addition, customers are also encouraged to have an emergency preparedness kit as a part of their disaster plan and have sufficient supplies at home to sustain a family for at least three days.

Conclusion

While electric utilities cannot say there will never be a power outage, the national and regional agencies continue to work together on identifying and reducing the vulnerabilities of the power grid as noted by a sampling of the operating standards that have been referenced in the above notes. By working together towards effective and efficient solutions, LADWP customers enjoy a highly reliable power system.

If you have any questions or require further information, please call me at (213) 367-1338, or you may have your staff contact Ms. Winifred J. Yancy, Director of Intergovernmental Affairs and Community Relations, at (213) 367-0025.

Sincerely,

Marcie L. Edwards
General Manager

PC:ps
c: The Honorable Bob Blumenfield, Vice-Chair, Energy and Environment Committee
The Honorable Jose Huizar, Member, Energy and Environment Committee
The Honorable Paul Koretz, Member, Energy and Environment Committee
The Honorable Tom LaBonge, Member, Energy and Environment Committee
Board of Water and Power Commissioners
Ms. Winifred J. Yancy

14-1690

MOTION ENERGY & ENVIRONMENT

The Los Angeles Department of Water and Power (LADWP) provides essential utility services to the City of Los Angeles, including a reliable grid. Reliability of the power grid is critical to life, health, public safety, and economic advancement of the City and surrounding region.

Electric utility properties and equipment are distributed over a large region and there may be vulnerabilities to this equipment including but not limited to: extraordinary solar flares creating damaging Electromagnetic Pulse (EMP) effects, geomagnetic disturbances, nuclear and non-nuclear EMP weapons, physical attacks, cyber attacks, equipment failures, and power overloads.

Additionally, the 2014 United Nations International Panel on Climate Change report warns that we are irreversibly on course to trigger the 3.6 degree Fahrenheit (2 degrees Celsius) global temperature tripwire that will "increase the likelihood of severe, pervasive and irreversible impacts for people and ecosystems," including more and worse extreme storm events, like those which have already been leaving affected areas without power sometimes for weeks.

It is important that LADWP maintain the historical reliability of the power system and address the power grid vulnerabilities described.

I THEREFORE MOVE that, within the provisions or limitations of prudent security practices, the LADWP report to the Energy and Environment Committee within 60 days on:

- The degree to which the electric utility properties and equipment (the power grid) are subject to damage from these vulnerabilities, the time spans and costs necessary for repair of such damage, and the impact such damage would inflict on the ability of the citizens, businesses, and governmental agencies to function in support of life, health, public safety, and economic advancement of the City and surrounding region;

- The standards used to prepare or protect the power grid from such vulnerabilities;

- The methods available to prepare or protect the power grid from such vulnerabilities, their costs, and their feasibilities;

- Practical and safe guidance as to how an individual utility customer, or a neighborhood, may be able to prepare for such emergencies as the inability of the LADWP to maintain service in the event of failures caused by these vulnerabilities, and how the City of Los Angeles could contribute to individual or neighborhood preparations;

- A comparison of the relative grid security and safety to residents of LADWP's service area by providing local renewable distributed generation sources and microgrids versus central station out-of-basin power generation.

PRESENTED BY: Paul Koretz

PAUL KORETZ
Councilmember, 5th District

DEC 0 9 2014

SECONDED BY:

ORIGINAL

LACityClerk Connect

Council File Management System

Council File: 14-1690

Date Received / Introduced
12/09/2014

Last Changed Date
02/05/2016

Expiration Date
01/27/2018

Reference Numbers
Related Council File: 15-1478-S1

Mover
PAUL KORETZ

Second
FELIPE FUENTES
JOSE HUIZAR

File Activities

Date	Activity
02/05/2016	Council action final.
02/02/2016	Council noted and filed item(s).
01/27/2016	City Clerk scheduled item for Council on February 2, 2016.
01/27/2016	Energy and Environment Committee waived consideration of item .
03/12/2015	Department of Water and Power document(s) referred to Energy and Environment Committee.
03/12/2015	Document(s) submitted by Department of Water and Power, as follows: Department of Water and Power report, dated February 23, 2015, relative to the security practices related to power grid vulnerabilities.
01/29/2015	Community Impact Statement submitted by Westwood Neighborhood Council.
12/09/2014	Motion referred to Energy and Environment Committee.

Online Documents (Doc)

Title	Doc Date
Report from Department of Water and Power (e)	03/12/2015
Community Impact Statement from Westwood Neighborhood Council (e)	01/29/2015
Motion	12/09/2014

Council Vote Information

Meeting Date: 02/02/2016
Meeting Type: Regular
Vote Action: Adopted to Note and File
Vote Given: (15 - 0 - 0)

Member Name	CD	Vote
BOB BLUMENFIELD	3	YES
MIKE BONIN	11	YES
JOE BUSCAINO	15	YES
GILBERT A. CEDILLO	1	YES
MITCHELL ENGLANDER	12	YES
FELIPE FUENTES	7	YES
MARQUEECE HARRIS-DAWSON	8	YES
JOSE HUIZAR	14	YES
PAUL KORETZ	5	YES
PAUL KREKORIAN	2	YES
NURY MARTINEZ	6	YES
MITCH O'FARRELL	13	YES
CURREN D. PRICE	9	YES
DAVID RYU	4	YES
HERB WESSON	10	YES

EXECUTIVE ORDERS

Executive Order on Coordinating National Resilience to Electromagnetic Pulses

— INFRASTRUCTURE & TECHNOLOGY Issued on: March 26, 2019

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Purpose. An electromagnetic pulse (EMP) has the potential to disrupt, degrade, and damage technology and critical infrastructure systems. Human-made or naturally occurring EMPs can affect large geographic areas, disrupting elements critical to the Nation's security and economic prosperity, and could adversely affect global commerce and stability. The Federal Government must foster sustainable, efficient, and cost-effective approaches to improving the Nation's resilience to the effects of EMPs.

Sec. 2. Definitions. As used in this order:

(a) "Critical infrastructure" means systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.

(b) "Electromagnetic pulse" is a burst of electromagnetic energy. EMPs have the potential to negatively affect technology systems on Earth and in space. A high-altitude EMP (HEMP) is a type of human-made EMP that occurs when a nuclear device is detonated at approximately 40 kilometers or more above the surface of Earth. A geomagnetic disturbance (GMD) is a type of natural EMP driven by a temporary disturbance of Earth's magnetic field resulting from interactions with solar eruptions. Both HEMPs and GMDs can affect large geographic areas.

(c) "National Critical Functions" means the functions of government and the private sector so vital to the United States that their disruption, corruption, or dysfunction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof.

(d) "National Essential Functions" means the overarching responsibilities of the Federal Government to lead and sustain the Nation before, during, and in the aftermath of a catastrophic emergency, such as an EMP that adversely affects the performance of Government.

(e) "Prepare" and "preparedness" mean the actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation. These terms include the prediction and notification of impending EMPs.

(f) A "Sector-Specific Agency" (SSA) is the Federal department or agency that is responsible for providing institutional knowledge and specialized expertise as well as leading, facilitating, or supporting the security and resilience programs and associated activities of its designated critical infrastructure sector in the all-hazards environment. The SSAs are those identified in Presidential Policy Directive 21 of February 12, 2013 (Critical Infrastructure Security and Resilience).

Sec. 3. Policy. (a) It is the policy of the United States to prepare for the effects of EMPs through targeted approaches that coordinate whole-of-government activities and encourage private-sector engagement. The Federal Government must provide warning of an impending EMP; protect against, respond to, and recover from the effects of an EMP through public and private engagement, planning, and investment; and prevent adversarial events through deterrence, defense, and nuclear nonproliferation efforts. To achieve these goals, the Federal Government shall engage in risk-informed planning, prioritize research and development (R&D) to address the needs of critical infrastructure stakeholders, and, for adversarial threats, consult Intelligence Community assessments.

(b) To implement the actions directed in this order, the Federal Government shall promote collaboration and facilitate information sharing, including the sharing of threat and vulnerability assessments, among executive departments and agencies (agencies), the owners and operators of critical infrastructure, and other relevant stakeholders, as appropriate. The Federal Government shall also provide incentives, as appropriate, to private-sector partners to encourage innovation that strengthens critical infrastructure against the effects of EMPs through the development and implementation of best practices, regulations, and appropriate guidance.

Sec. 4. Coordination. (a) The Assistant to the President for National Security Affairs (APNSA), through National Security Council staff and in consultation with the Director of the Office of Science and Technology Policy (OSTP), shall coordinate the development and implementation of executive branch actions to assess, prioritize, and manage the risks of EMPs. The APNSA shall, on an annual basis, submit a report to the President summarizing progress on the implementation of this order, identifying gaps in capability, and recommending how to address those gaps.

(b) To further the Federal R&D necessary to prepare the Nation for the effects of EMPs, the Director of OSTP shall coordinate efforts of agencies through the National Science and Technology Council (NSTC). The Director of OSTP, through the NSTC, shall annually review and assess the R&D needs of agencies conducting preparedness activities for EMPs, consistent with this order.

Sec. 5. Roles and Responsibilities. (a) The Secretary of State shall:

(i) lead the coordination of diplomatic efforts with United States allies and international partners regarding enhancing resilience to the effects of EMPs; and

(ii) in coordination with the Secretary of Defense and the heads of other relevant agencies, strengthen nuclear nonproliferation and deterrence efforts, which would reduce the likelihood of an EMP attack on the United States or its allies and partners by limiting the availability of nuclear devices.

(b) The Secretary of Defense shall:

(i) in cooperation with the heads of relevant agencies and with United States allies, international partners, and private-sector entities as appropriate, improve and develop the ability to rapidly characterize, attribute, and provide warning of EMPs, including effects on space systems of interest to the United States;

(ii) provide timely operational observations, analyses, forecasts, and other products for naturally occurring EMPs to support the mission of the Department of Defense along with United States allies and international partners, including the provision of alerts and warnings for natural EMPs that may affect weapons systems, military operations, or the defense of the United States;

(iii) conduct R&D and testing to understand the effects of EMPs on Department of Defense systems and infrastructure, improve capabilities to model and simulate the environments and effects of EMPs, and develop technologies to protect Department of Defense systems and infrastructure from the effects of EMPs to ensure the successful execution of Department of Defense missions;

(iv) review and update existing EMP-related standards for Department of Defense systems and infrastructure, as appropriate;

(v) share technical expertise and data regarding EMPs and their potential effects with other agencies and with the private sector, as appropriate;

(vi) incorporate attacks that include EMPs as a factor in defense planning scenarios; and

(vii) defend the Nation from adversarial EMPs originating outside of the United States through defense and deterrence, consistent with the mission and national security policy of the Department of Defense.

(c) The Secretary of the Interior shall support the research, development, deployment, and operation of capabilities that enhance understanding of variations of Earth's magnetic field associated with EMPs.

(d) The Secretary of Commerce shall:

(i) provide timely and accurate operational observations, analyses, forecasts, and other products for natural EMPs, exclusive of the responsibilities of the Secretary of Defense set forth in subsection (b)(ii) of this section; and

(ii) use the capabilities of the Department of Commerce, the private sector, academia, and nongovernmental organizations to continuously improve operational forecasting services and the development of standards for commercial EMP technology.

(e) The Secretary of Energy shall conduct early-stage R&D, develop pilot programs, and partner with other agencies and the private sector, as appropriate, to characterize sources of EMPs and their couplings to the electric power grid and its subcomponents, understand associated potential failure modes for the energy sector, and coordinate preparedness and mitigation measures with energy sector partners.

(f) The Secretary of Homeland Security shall:

(i) provide timely distribution of information on EMPs and credible associated threats to Federal, State, and local governments, critical infrastructure owners and operators, and other stakeholders;

(ii) in coordination with the heads of any relevant SSAs, use the results of risk assessments to better understand and enhance resilience to the effects of EMPs across all critical infrastructure sectors, including coordinating the identification of national critical functions and the prioritization of associated critical infrastructure at greatest risk to the effects of EMPs;

(iii) coordinate response to and recovery from the effects of EMPs on critical infrastructure, in coordination with the heads of appropriate SSAs;

(iv) incorporate events that include EMPs as a factor in preparedness scenarios and exercises;

(v) in coordination with the heads of relevant SSAs, conduct R&D to better understand and more effectively model the effects of EMPs on national critical functions and associated critical infrastructure — excluding Department of Defense systems and infrastructure — and develop technologies and guidelines to enhance these functions and better protect this infrastructure;

(vi) maintain survivable means to provide necessary emergency information to the public during and after EMPs; and

(vii) in coordination with the Secretaries of Defense and Energy, and informed by intelligence-based threat assessments, develop quadrennial risk assessments on EMPs, with the first risk assessment delivered within 1 year of the date of this order.

(g) The Director of National Intelligence shall:

(i) coordinate the collection, analysis, and promulgation, as appropriate, of intelligence-based assessments on adversaries' capabilities to conduct an attack utilizing an EMP and the likelihood of such an attack; and

(ii) provide intelligence-based threat assessments to support the heads of relevant SSAs in the development of quadrennial risk assessments on EMPs.

(h) The heads of all SSAs, in coordination with the Secretary of Homeland Security, shall enhance and facilitate information sharing with private-sector counterparts, as appropriate, to enhance preparedness for the effects of EMPs, to identify and share vulnerabilities, and to work collaboratively to reduce vulnerabilities.

(i) The heads of all agencies that support National Essential Functions shall ensure that their allhazards preparedness planning sufficiently addresses EMPs, including through mitigation, response, and recovery, as directed by national preparedness policy.

Sec. 6. Implementation. (a) Identifying national critical functions and associated priority critical infrastructure at greatest risk.

(i) Within 90 days of the date of this order, the Secretary of Homeland Security, in coordination with the heads of SSAs and other agencies as appropriate, shall identify and list the national critical functions and associated priority critical infrastructure systems, networks, and assets, including space-based assets that, if disrupted, could reasonably result in catastrophic national or regional effects on public health or safety, economic security, or national security. The Secretary of Homeland Security shall update this list as necessary.

(ii) Within 1 year of the identification described in subsection (a)(i) of this section, the Secretary of Homeland Security, in coordination with the heads of other agencies as appropriate, shall, using appropriate government and private-sector standards for EMPs, assess which identified critical infrastructure systems, networks, and assets are most vulnerable to the effects of EMPs. The Secretary of Homeland Security shall provide this list to the President, through the APNSA. The Secretary of Homeland Security shall update this list using the results produced pursuant to subsection (b) of this section, and as necessary thereafter.

(b) Improving understanding of the effects of EMPs.

(i) Within 180 days of the identification described in subsection (a)(ii) of this section, the Secretary of Homeland Security, in coordination with the heads of SSAs and in consultation with the Director of OSTP and the heads of other appropriate agencies, shall review test data — identifying any gaps in such data — regarding the effects of EMPs on critical infrastructure systems, networks, and assets representative of those throughout the Nation.

(ii) Within 180 days of identifying the gaps in existing test data, as directed by subsection (b)(i) of this section, the Secretary of Homeland Security, in coordination with the heads of SSAs and in consultation with the Director of OSTP and the heads of other appropriate agencies, shall use the sector partnership structure identified in the National Infrastructure Protection Plan to develop an integrated cross-sector plan to address the identified gaps. The heads of agencies identified in the plan shall implement the plan in collaboration with the private sector, as appropriate.

(iii) Within 1 year of the date of this order, and as appropriate thereafter, the Secretary of Energy, in consultation with the heads of other agencies and the private sector, as appropriate, shall review existing standards for EMPs and develop or update, as necessary, quantitative benchmarks that sufficiently describe the physical characteristics of EMPs, including waveform and intensity, in a form that is useful to and can be shared with owners and operators of critical infrastructure.

(iv) Within 4 years of the date of this order, the Secretary of the Interior shall complete a magnetotelluric survey of the contiguous United States to help critical infrastructure owners and operators conduct EMP vulnerability assessments.

(c) Evaluating approaches to mitigate the effects of EMPs.

(i) Within 1 year of the date of this order, and every 2 years thereafter, the Secretary of Homeland Security, in coordination with the Secretaries of Defense and Energy, and in consultation with the Director of OSTP, the heads of other appropriate agencies, and private-sector partners as appropriate, shall submit to the President, through the APNSA, a report that analyzes the technology options available to improve the resilience of critical infrastructure to the effects of EMPs. The Secretaries of Defense, Energy, and Homeland Security shall also identify gaps in available technologies and opportunities for future technological developments to inform R&D activities.

(ii) Within 180 days of the completion of the activities directed by subsections (b)(iii) and (c)(i) of this section, the Secretary of Homeland Security, in coordination with the heads of other agencies and in consultation with the private sector as appropriate, shall develop and implement a pilot test to evaluate available engineering approaches for mitigating the effects of EMPs on the most vulnerable critical infrastructure systems, networks, and assets, as identified in subsection (a)(ii) of this section.

(iii) Within 1 year of the date of this order, the Secretary of Homeland Security, in coordination with the heads of relevant SSAs, and in consultation with appropriate regulatory and utility commissions and other stakeholders, shall identify regulatory and non regulatory mechanisms, including cost recovery measures, that can enhance private-sector engagement to address the effects of EMPs.

(d) Strengthening critical infrastructure to withstand the effects of EMPs.

(i) Within 90 days of completing the actions directed in subsection (c)(ii) of this section, the Secretary of Homeland Security, in coordination with the Secretaries of Defense and Energy and in consultation with the heads of other appropriate agencies and with the private sector as appropriate, shall develop a plan to mitigate the effects of EMPs on the vulnerable priority critical infrastructure systems, networks, and assets identified under subsection (a)(ii) of this section. The plan shall align with and build on actions identified in reports required by Executive Order 13800 of May 11, 2017 (Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure). The Secretary of Homeland Security shall implement those elements of the plan that are consistent with Department of Homeland Security authorities and resources, and report to the APNSA regarding any additional authorities and resources needed to complete its implementation. The Secretary of Homeland Security, in coordination with the Secretaries of Defense and Energy, shall update the plan as necessary based on results from the actions directed in subsections (b) and (c) of this section.

(ii) Within 180 days of the completion of the actions identified in subsection (c)(i) of this section, the Secretary of Defense, in consultation with the Secretaries of Homeland Security and Energy, shall conduct a pilot test to evaluate engineering approaches used to harden a strategic military installation, including infrastructure that is critical to supporting that installation, against the effects of EMPs.

(iii) Within 180 days of completing the pilot test described in subsection (d)(ii) of this section, the Secretary of Defense shall report to the President, through the APNSA, regarding the cost and effectiveness of the evaluated approaches.

(e) Improving response to EMPs.

(i) Within 180 days of the date of this order, the Secretary of Homeland Security, through the Administrator of the Federal Emergency Management Agency, in coordination with the heads of appropriate SSAs, shall review and update Federal response plans, programs, and procedures to account for the effects of EMPs.

(ii) Within 180 days of the completion of actions directed by subsection (e)(i) of this section, agencies that support National Essential Functions shall update operational plans documenting their procedures and responsibilities to prepare for, protect against, and mitigate the effects of EMPs.

(iii) Within 180 days of identifying vulnerable priority critical infrastructure systems, networks, and assets as directed by subsection (a)(ii) of this section, the Secretary of Homeland Security, in consultation with the Secretaries of Defense and Commerce, and the Chairman of the Federal Communications Commission, shall provide the Deputy Assistant to the President for Homeland Security and Counterterrorism and the Director of OSTP with an assessment of the effects of EMPs on critical communications infrastructure, and recommend changes to operational plans to enhance national response and recovery efforts after an EMP.

Sec. 7. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) the authority granted by law to an executive department or agency, or the head thereof; or

(ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

DONALD J. TRUMP

THE WHITE HOUSE,
March 26, 2019.

POLITICO

Is it lights out for Trump's EMP push?

President Donald Trump. | Alex Brandon/AP Photo

By Sarah Cammarata

11/18/2019 01:18 PM EST

Turnover in President Donald Trump's national security staff may be having a little-noticed side effect: Worries about nuclear weapons zapping America's electric grid will return to the fringe.

Warnings about electromagnetic pulse attacks have long inspired eye-rolls or outright guffaws among national security experts, but advocates of the issue briefly found a home on Trump's National Security Council, and the president himself issued an executive order on the topic in March. That respectability boom shows signs of fading, however, as those advocates leave the administration.

On Sept. 13, controversial physicist, self-declared climate skeptic and backer of the fight against EMPs William Happer left the White House. Three days earlier, Trump had ousted national security adviser John Bolton, who according to people close to the congressional EMP effort was also a backer of hardening power plants and the electric grid against the threat.

"With Bolton gone and some of the people he had brought in … this has disrupted the process," said Peter Pry, executive director of the now-disbanded congressional advisory board that studied EMPs.

Trump's executive order on March 29 was meant to aid coordination between the departments of Homeland Security, Energy and Defense, as well as numerous other federal agencies, to

address the long-debated risk. The utility industry has resisted hardening the grid to EMP attacks because of the high cost of addressing what it considers an unlikely threat.

"*The bureaucracy does not want this executive order*," Pry added, referring to the president's order on EMP resilience. "*What they're trying to do is lowball the EMP threat* … to such a level that basically industry will have to do little or nothing."

The difficulty that comes with shielding civilian infrastructure, *which some experts predict could cost many billions of dollars*, is one source of contention. Plus, those costs would probably fall unevenly among U.S. states, *with residents in the highest energy-producing states paying more in taxes to fund EMP protection*.

"*I can't see utilities spending a lot of money on" EMP protection*, said Arthur House, the former chairman of Connecticut's Public Utilities Regulatory Authority. "A state would certainly not put that money into it."

Mainstream national security experts have dismissed the idea of such an atmospheric attack, which in some scenarios would involve a rogue nation exploding a small nuclear weapon to wipe out major parts of the power grid. *Detonating a nuke over the U.S. would almost certainly trigger a devastating nuclear response, and the actual effect of such an attack is untested, they argue*.

Talks of an EMP threat first came from the Nuclear Regulatory Commission *in a 1983 report*, over two decades after the first widely recognized EMP event occurred during the Cold War. Pry's pre-Trump congressional EMP commission released its initial report with recommendations in 2004, and its last report was published in July 2017.

Before Trump took office, a small camp of the president's proponents had urged lawmakers and industry officials to address the threats to the power system *from electromagnetic pulses and solar storms*, including HUD Secretary Ben Carson, Sen. Ted Cruz (R-Texas) and former Speaker Newt Gingrich, who has a close relationship with Trump.

Pry said he introduced the idea of EMPs to then-candidate Trump before the Iowa caucuses in 2016. "He appreciated the magnitude of this threat," he said. Pry recalled Trump promising, "Don't worry, we'll knock our heads together and solve this problem." The now-disbanded commission Pry led on EMP issued recommendations that he said were baked into Trump's executive order.

A consensus among most in the scientific community is that EMP attacks are nothing to worry about and even a laughable subject. But a smaller group of scientists has argued that the federal budget should make a priority of spending for preparing for EMPs — as do some political figures, such as Cruz, who reject the much greater scientific consensus about the perils of human-driven climate change.

A nuclear weapons expert at the Middlebury Institute told NPR in 2017: "This is the favorite nightmare scenario of a small group of very dedicated people."

House, former chief cybersecurity risk officer for Connecticut, said it would make little sense for a nation to launch an EMP attack on the United States.

"The problem is it's such a blunt instrument. ***An EMP just wreaks havoc without much precision. In that way, it's like an unsmart bomb***," he said. And once the U.S. figures out who committed the attack, "it invites massive retaliation," he added.

As a rift widens between government officials and experts who view EMP attacks as a credible threat and those who do not, the drive to devote more resources to EMP "resiliency" accelerated in the last few years within the administration. Some experts close to the government's EMP advocates worry that the effort will now start to slow.

Still, Happer said the National Security Council had been meeting and discussing the subject regularly before he came to the White House. Happer, ***a prominent Princeton-trained physicist*** who has drawn scrutiny ***for praising carbon dioxide emissions as beneficial to the planet***, was a senior official on the NSC.

"[My] main contribution was to argue strongly ***for pilot plans that could serve as models***," Happer told POLITICO. "Even when I came, there were a number of people working on it," including Charles Kupperman, Bolton's deputy, and Mark Harvey, senior director for resilience policy on the National Security Council staff, he said.

The NSC declined to comment for this report.

"John Bolton, for example, knew about EMP," Pry said. "There were a number of people on the NSC, on the staff, before Will Happer. Happer was one of the people assigned to implementation of it, but before he came along, there were other people who were cognizant of the EMP threat, and knew it was an existential threat to us."

The effort also has backers in senior military ranks.

The Electromagnetic Defense Task Force is spearheaded by the Air Force's Air University, and ***advocates include Air Force Maj. David Stuckenberg, who is now at the State Department, and now-retired Lt. Gen. Steven Kwast***. The group was formed last year to better understand the electromagnetic spectrum, ***and consists of more than 360 fellows***, according to the task force's August report on EMP.

Edwin Lyman, acting director of the nuclear safety project at the Union of Concerned Scientists, was among hundreds of experts, including administration officials and industry executives, who gathered for an Electromagnetic Defense Task Force-led summit this spring. ***The group's second annual report urges the government to take greater action on EMP, and advocates for the creation of a new position on the Joint Chiefs of Staff to address the issue***.

Air University's "war-gamers" say that "the EMP option is very attractive for the adversary to use," Lyman said.

He added that Happer was the only member of the NSC to attend the task force's meeting, and Happer also participated in a classified working group on spectrum warfare.

"I think it's in very good hands," Happer said when discussing the status of the executive order.

Thomas Popik, president of the Foundation for Resilient Societies, said the momentum for EMP protection is driven by the fact that nations such as North Korea are developing, and threatening, the U.S. with a nuclear attack. Iran, he said, has also conducted a ballistic missile test at a high altitude, characteristic of a practice run of an EMP attack.

"It's a mistake to think if there's a personnel change, the societal momentum for EMP protection will evaporate," said Popik, who is also a member of the North American Electric Reliability Corp. EMP Task Force that arose from the executive order. "It's really no accident that the executive order for EMP protection is coming at the same time," as threats of nuclear attacks come from places like Pyongyang.

Popik pointed to two instances, one in North Korea and the other in Iran, when the government detonated missiles "characteristic of a practice run of EMP."

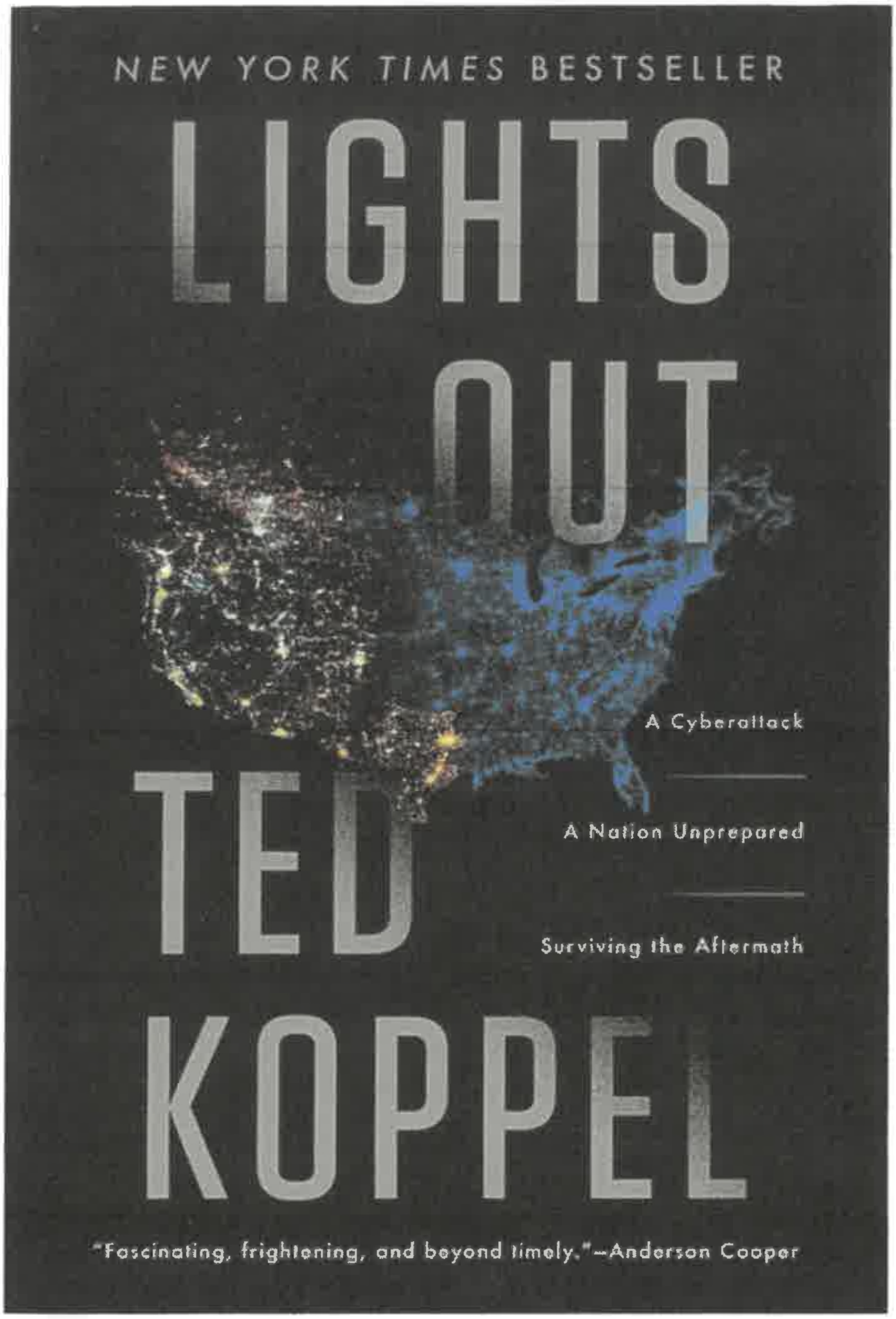
However, major roadblocks remain to protecting against EMPs that could take many years for power utilities to flesh out.

The Nuclear Regulatory Commission is tasked with working with various agencies to address the executive order. ***It has faced criticism from experts who say the agency does not have adequate plans in place to protect U.S. nuclear power plants if an EMP attack causes an extended blackout***.

"The NRC met its first deadline of providing the critical assets, networks, and systems under our purview to DHS on July 5," an NRC spokesperson said in a statement to POLITICO. After the second deadline passed on Sept. 26, he said the commission was "following the requirements of the Executive Order and working with the appropriate agencies."

But Lyman said he is "shocked the NRC is so complacent." He made the remark after the Electromagnetic Defense Task Force summit where NRC officials had met to discuss the group's report, which sharply criticizes the agency.

"***I don't think the U.S. has this resilience to cope with the failure of the grid, beyond a certain time***," Lyman added.


NEW YORK TIMES BESTSELLER
LIGHTS OUT
A Cyberattack
A Nation Unprepared
Surviving the Aftermath
TED KOPPEL
"Fascinating, frightening, and beyond timely."—Anderson Cooper