



CENTER FOR SECURITY POLICY

Thomas J. Waller Jr, Vice President, Special Projects

11 April 2019

The Honorable Brian Birdwell, Chair
The Honorable Judith Zaffirini, Vice Chair
Senate Committee on Natural Resources & Economic Development
Texas Senate, Sam Houston Building, 325
Austin TX 78711-2068

Subject: A Properly Staffed/Resourced Grid Security Council Can Put Texas in the Lead

Dear Chairman Birdwell, Vice-Chair Zaffirini and other members of the Committee:

I am an employee of the Center for Security Policy, a 501 (c) (3) organization under the IRS Code and one that receives NO funding from the government at any level, nor by the electric utility industry, or the various companies that do business protecting critical infrastructure. Our educational corporation provides unbiased, fact-based research and analysis to policymakers at all levels of government as well as defense professionals, law enforcement, and citizens nationwide.

Our Center sponsors and I manage the daily operations of the *Secure The Grid Coalition* – a broad group of national security experts working hard around the country to secure our nation’s most critical infrastructure – its electric grid – against ALL HAZARDS, including terrestrial destructive weather, physical attack, cyberattack, electromagnetic pulse (EMP) and geomagnetic disturbances (GMD).

Since January 21st 2015, the day after Governor Abbott’s inauguration, our Coalition has been working to educate your legislature through **six briefings and more than 32 hours of education on this topic**, some of which took place just weeks ago in another Senate committee.

Over these past four years the public has become well informed on the vulnerability of our nation’s grid and on the importance of protecting it. The public has also recognized that under previous Presidential administrations and Congresses, the Federal government has largely failed to protect America against the hazards of EMP & GMD. In fact, this recognition is shared by many members of Texas’ own Congressional Delegation. **In 2015 and again in 2018 numerous members of the Texas Congressional delegation authored letters to Governor Abbott requesting that he take action to Secure the Grid of Texas against ALL HAZARDS – including EMP & GMD.** Copies of both letters are enclosed in this written testimony.

In the absence of Federal-level leadership, other states around the nation have enacted effective legislation to protect against threats to the grid, including EMP & GMD. For example, on September 11th of last year, the California governor signed into law SB-1076 – a law that

requires the office to update the State Emergency Plan to include cost-effective preparedness recommendations to feasibly harden the critical infrastructure of electrical utilities against an electromagnetic pulse attack, geomagnetic storm, or other potential cause of a long-term outage.

Fortunately, under the Trump Administration's courageous leadership, a bi-partisan effort is underway to address these vulnerabilities at the Federal Level. Building on President Obama's Space Weather Strategy of 2015 and President Trump's Executive Order on Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure of 2017, the White House recently issued Executive Order 13865, titled: "Coordinating National Resilience to Electromagnetic Pulses." The combination of these successive efforts has placed the Federal Government on a footing to begin addressing the problems of grid vulnerability.

Against the backdrop of this building awareness and momentum, Texas has a choice – to lead, to follow, or to get out of the way. Your legislature's vote on SB 76 will give the Federal Government, our Coalition, and the nation, an indication on how you want to treat this opportunity. Let me explain, starting with what I consider the least desirable course of action:

Getting out of the way: The Legislature can continue watching threats to the grid grow and just ignore them or trust that the electric power industry is addressing them on their own. You know there are many ways to kill a bill and you can just choose one of them to kill this one. That "nothing to see here" and recklessly optimistic attitude will signal to our Coalition and the Federal government that our efforts and resources ought not be applied to this state when there are many others, like California, Wyoming, and South Carolina that are working hard to address these challenges. Your state's population will continue to be vulnerable to the economic loss, death, and destruction that could come with a prolonged electric power outage.

Following: The Legislature can pass SB 76 and establish a Grid Security Council (or possibly more than one since there are more than one bill to establish such a council) and appease your constituents, but then also appease the electric power industry (that has traditionally lobbied against grid protection initiatives) by expecting only the minimum out of this Council. This would conveniently combine the appearance of action with the comfortable optimistic outlook that has characterized the last four years of failure for this legislature to address threats to the grid. Our Coalition and the Federal government will applaud the passage of this legislation and try to help your state, but will have to triage our support to your effort against that of other states and apply the finite resources and time to those with the most enthusiasm and bias for action – which are not those who are following, but rather those who are leading.

Leading: The Legislature can decide to not only pass SB 76 but to strengthen it by adding a more comprehensive list of members to the Council, a more aggressive timeline for action, and creative incentives that build in an inherent bias for action among Council members, owners & operators of critical infrastructure, and state and local government personnel. The way this could be done is by taking the current language of SB 76 and carefully amending it to include provisions from another bill authored by Senator Hall and filed later in the session: SB 1003 – "Resilient Communities & Electric Grid Security."

Specifically, at a minimum, I suggest amending SB 76 and adding the following personnel to the list of Grid Security Council members:

- a representative of the Texas Military Preparedness Commission appointed by the military preparedness commission;
- a representative of the Office of State-Federal Relations appointed by the director;
- a representative of the Department of Information Resources appointed by the director;
- a representative from each of Texas' two nuclear power generation facilities
- two representatives of transmission and distribution utilities appointed by the chief of the Texas Division of Emergency Management;
- one representative appointed by the chief of the Texas Division of Emergency

Management from each of the following essential services sectors:

- (A) law enforcement;
- (B) emergency services;
- (C) communications;
- (D) water and sewer services;
- (E) health care;
- (F) financial services; and
- (G) food and agriculture;
- an expert in the field of higher education appointed by the chief of the Texas Division of Emergency Management.

- An "on call" panel of independent experts comprised of members of the United States Air Force's Electromagnetic Defense Task Force (EDTF), the former Congressional EMP Commission, the Department of Energy's Idaho National Laboratory (INL), and any other members of Non-Governmental Organizations (NGOs) requested based on their expertise.

This simple amendment to Council personnel would bring in representatives from critical industries and services around the state and nation that could assist the Council with finding solutions to (1) protect the grid, (2) reconstitute a downed grid, (3) manage the consequences of a prolonged blackout, and (4) provide for continuity of government during such a blackout.

Adding a provision for a panel of "on call" independent experts will provide the Council with the type of expertise resident in our Federal Government and within the world of NGOs and our "Secure the Grid Coalition." Enclosed with my testimony is that of other Coalition members and a careful review of these documents will make it clear why such independent expertise is critical to the Council's success. For example:

- Mary D. Lasky, William R. Harris, and Stephen Volandt - officers of the InfraGard Electromagnetic Pulse Special Interest Group – point out the promising and cost effective work already accomplished in Texas by CenterPoint Energy and American Electric Power and would make available their consistent work on the constantly evolving publication: "Powering Through: From Fragile Infrastructure to Resilient Communities."

- Ambassador Hank Cooper, a senior executive in both the Reagan and Bush Administrations, explains that the cost estimate for EMP protecting the distribution assets of critical

infrastructures in York County South Carolina amount to a one-time cost of \$115 per resident. Since his work in estimating protection costs associated with generation and transmission are still underway, it behooves a future Texas Grid Security Council to call upon the same experts who have assisted with his promising “Lake Wyle Pilot Project”.

- Dr. Peter Vincent Pry, the former Chief of Staff of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack established by the U.S. Congress, and the former senior analyst for EMP threats and nuclear strategy at the Central Intelligence Agency accurately describes the combined-arms threat from Russia, China, North Korea and Iran – threats which must be countered with an “all hazards” protection strategy.

- Dr. Richard M. Krieg, a resident of Texas, discusses his healthcare experience and sobering lessons learned by leading table top exercises in Texas on prolonged blackouts.

- Dr. Fred Reitman, a resident of Texas, discusses the imperative of the state protecting the grid the same way it protects the environment and public health through the Texas Commission on Environmental Quality, or TCEQ

- Glenn E. Rhoades, BED, MBA describes how passage of SB 76 will help the state comply with the provisions of the Texas Energy Assurance Plan of November of 2012.

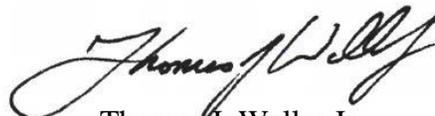
Having met with many of your constituents over the last four years and with senior executives at the White House immediately preceding my trip to Austin, I can tell you that the consensus opinion is that Texas should LEAD. The decision, though, is entirely up to you.

Passing SB 76 and amending it to reflect the spirit and intent of SB 1003 would result in rapid action and economic incentives for businesses, American citizens, and U.S. Military planners seeking a state that is home to an electric grid resilient to ALL HAZARDS. A resilient Texas electric grid would be the catalyst for the largest economic boom in Texas history.

I encourage you to carefully consider this testimony and the below educational material as you make this immensely important decision. I also want to encourage you to know that the citizens of Texas are aware of these threats and expecting you to serve the public interest.

If you have any questions, please don't hesitate to contact me at 202-302-1974 or twaller@centerforsecuritypolicy.org Thank you very much.

Semper Fidelis,



Thomas J. Waller Jr.
Vice President, Special Projects
Center for Security Policy

Additional Enclosed Written Testimony by Members of the Secure the Grid Coalition:

- Written Testimony of Mary D. Lasky, William R. Harris, and Stephen Volandt, officers of the InfraGard Electromagnetic Pulse Special Interest Group
- Written Testimony of Ambassador Hank Cooper, Chairman, High Frontier
- Written Testimony by Dr. Peter Vincent Pry, Executive Director of the EMP Task Force on National and Homeland Security, the former Chief of Staff of the Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack established by the U.S. Congress, and the former senior analyst for EMP threats and nuclear strategy at the Central Intelligence Agency
- Written Testimony of Richard M. Krieg, Ph.D.
- Written Testimony of Fred Reitman, Ph.D.
- Written Testimony of Glenn E. Rhoades, BED, MBA

Additional Enclosures:

- Texas Congressional Delegation Letter to Governor Abbott dated November 2, 2015
- Texas Congressional Delegation Letter to Governor Abbott dated September 28, 2018
- Executive Order 13865 - Coordinating National Resilience to Electromagnetic Pulses dated March 26, 2019

Suggested Educational Resources:

DHS's NCC Guidelines for EMP Protection (2019):

National Coordinating Center for Communications (NCC). "Electromagnetic Pulse (EMP) Protection and Resilience Guidelines for Critical Infrastructure and Equipment" February 5, 2019. https://michaelmabee.info/wp-content/uploads/2019/02/2019-02-05-EMP-Protection-and-Resilience-Guidelines-v2_2-5-Feb-2019-Final.pdf

(See especially executive overview on Page 2)

USAF Air University's Electromagnetic Defense Task Force (EDTF) (2018):

EDTF Project Spartacus Report: https://media.defense.gov/2018/Nov/28/2002067172/-1/-1/0/LP_0002_DEMAIO_ELECTROMAGNETIC_DEFENSE_TASK_FORCE.PDF

The President's NIAC Report: "Surviving a Catastrophic Power Outage." (2018)

President's National Infrastructure Advisory Council (NIAC) on "Surviving a Catastrophic Power Outage."

https://www.dhs.gov/sites/default/files/publications/NIAC%20Catastrophic%20Power%20Outage%20Study_508%20FINAL.pdf

DHS Strategy on EMP (2018):

https://www.dhs.gov/sites/default/files/publications/18_1009_EMP_GMD_Strategy-Non-Embargoed.pdf

Congressional EMP Commission Reports & Documents (2004, 2008, 2017):

All of the UNCLASSIFIED reports and documents of the EMP Commission are listed below and can be found here: <http://www.firstempcommission.org/>

1. 2004 Report of the Commission to Assess the Threat to the United States from EMP Attack: Volume 1 Executive Report
2. 2008 Report of the Commission to Assess the Threat to the United States from EMP Attack: Critical National Infrastructures
3. 2017 Chairman's Report. UNCLASSIFIED assessment of EMP threat and recommendations in greater depth than Executive Summary.
4. 2017 Executive Summary—Assessing the Threat From EMP Attack. UNCLASSIFIED. Natural and manmade EMP are existential threats deserving highest-priority to protect electric grids and other life-sustaining critical infrastructures through a White House-level executive agent with responsibility, powers, authorities, and new institutional arrangements to replace the failed old.
5. Recommended E3 HEMP Heave Electric Field Waveform for the Critical Infrastructures. UNCLASSIFIED critique and correction of erroneous E3 EMP studies by NERC, EPRI, others.
 - a. *Note: The research and preparation of the "Recommended E3 HEMP Heave Electric Field Waveform for the Critical Infrastructures" report was done by Dr. William Radasky and Dr. Edward Savage of the Metatech Corp. using data provided to them by scientists from the Russian Federation at the request of the EMP Commission.*
6. Risk-Based National Infrastructure Protection Priorities for EMP and Solar Storms. UNCLASSIFIED critique and correction of risk-based assessment of threat from nuclear and natural EMP threat.
7. Electric Reliability Standards for Solar Geomagnetic Disturbances. UNCLASSIFIED critique of grossly inadequate U.S. FERC-NERC Standard for GMD and E3 EMP.
8. Examination of NERC GMD Standards and Validation of Ground Models and Geoelectric Fields. UNCLASSIFIED critique and correction of NERC GMD/E3 EMP Standard which grossly underestimates GMD and E3 EMP threat.
9. Life Without Electricity: Storm-Induced Blackouts and Implications for Electromagnetic Pulse Attack. UNCLASSIFIED. Storm-induced blackouts prove life-sustaining critical infrastructures will likely collapse for months or years in an EMP event.
10. Nuclear EMP Attack and Combined-Arms Cyber Warfare. UNCLASSIFIED assessment of revolutionary new way of warfare by Russia, China, North Korea and Iran and worldwide scenarios describing how these states could wage combined EMP and cyber-attacks.
11. Political-Military Motives for Electromagnetic Pulse Attack. UNCLASSIFIED analysis of foreign military doctrines, planning, exercises, and capabilities for EMP attack.
12. Foreign Views of Electromagnetic Pulse Attack. UNCLASSIFIED analysis of foreign military doctrines on EMP attack.

Research by the Government Accountability Office (2016)

April 25, 2016 report: CRITICAL INFRASTRUCTURE PROTECTION: Federal Agencies Have Taken Actions to Address Electromagnetic Risks, but Opportunities Exist to Further Assess Risks and Strengthen Collaboration

(On P.1 GAO concluded: “[U.S. Department of Homeland Security] DHS and [U.S. Department of Energy] DOE, in conjunction with industry, have not established a coordinated approach to identifying and implementing key risk management activities to address EMP risks.”)

<https://www.gao.gov/assets/680/676030.pdf>

Research by Foundation for Resilient Societies

1. Draft Situation Report on Venezuela:
http://www.resilientsocieties.org/uploads/5/4/0/0/54008795/draft_situation_assessment_of_venezuela_blackout_20190314.pdf
2. High Consequence Scenarios for North Korean Atmospheric Nuclear Tests with Policy Recommendations for the U.S. Government:
http://www.resilientsocieties.org/uploads/5/4/0/0/54008795/nk_emp_paper_20171130.pdf
3. Petition to the NRC PRM 50-96:
https://www.resilientsocieties.org/uploads/5/4/0/0/54008795/petition_for_rulemaking_resilient_societies_docketed.pdf

Research by Michael Mabee on the pitfalls of Electric Power Industry Self-Regulation:

Retired Command Sergeant Major Michael Mabee has been researching the threats to the electric grid for over 7 years. His website hosts more than two decades of federal reports, congressional hearings and studies that unequivocally prove that our electric grid is susceptible to numerous known threats. He has published a comprehensive list of these reports and studies here:

<https://michaelmabee.info/government-documents-emp-and-grid-security/>

Michael has also chronicled the safety and security pitfalls of the “Self -Regulation” taking place between FERC & NERC and among the electric utility industry members here:

<https://michaelmabee.info/>

Research by the Secure the Grid Coalition Shedding Light on Industry Misinformation

A Rebuttal to the Edison Electric Institute White Paper “Electromagnetic Pulses: Myths vs. Facts”

<https://securethegrid.com/fake-news-by-edison-electric-institute/>

FERC / Metatech Collaborative Research Documents (2010 & 2017):

1. U.S. Federal Energy Regulatory Commission (FERC) Interagency Report, coordinated with the Department of Defense and Oak Ridge National Laboratory: Electromagnetic Pulse: Effects on the U.S. Power Grid, Executive Summary (2010)
https://www.ferc.gov/industries/electric/industryact/reliability/cybersecurity/ferc_executive_summary.pdf
2. FERC Interagency Report by Edward Savage, James Gilbert and William Radasky, The Early-Time (E1) High-Altitude Electromagnetic Pulse (HEMP) and Its Impact on the U.S. Power Grid (Meta-R-320) Metatech Corporation (January 2010)
https://www.eiscouncil.org/App_Data/Upload/9b03e596-19c8-49bd-8d4e-a8863b6ff9a0.pdf

3. FERC Interagency Report by James Gilbert, John Kappenman, William Radasky, and Edward Savage, The Late-Time (E3) High-Altitude Electromagnetic Pulse (HEMP) and Its Impact on the U.S. Power Grid (Meta-R-321) Metatech Corporation (January 2010) http://www.futurescience.com/emp/ferc_Meta-R-321.pdf
4. FERC Reliability Technical Conference, Docket No. AD17-8-000, Testimony of Dr. George H. Baker: <https://www.ferc.gov/CalendarFiles/20170717080646-Baker,%20EMP%20Commission.pdf>

Research by the EIS Council

Energy Law Journal Article: VULNERABILITY OF NATIONAL POWER GRIDS TO ELECTROMAGNETIC THREATS: DOMESTIC AND INTERNATIONAL PERSPECTIVES

<https://www.eba-net.org/assets/1/6/12-1-Schnurr.pdf>

Research by Lloyds of London (2013 & 2015)

1. 2013 Report - Solar storm risk to the North American electric grid
<https://www.lloyds.com/~media/lloyds/reports/emerging-risk-reports/solar-storm-risk-to-the-north-american-electric-grid.pdf>
(This report, which was produced in collaboration with the Atmospheric and Environmental Research (AER), examines the impact of solar storms on North America's electric grid)
2. 2015 Report - Business Blackout:
<https://www.lloyds.com/~media/files/news-and-insight/risk-insight/2015/business-blackout/business-blackout20150708.pdf>
(This Lloyds scenario postulates a cyberattack on the electric grid that burns out 50 generators and plunges into blackout the northeastern U.S., 15 states, including NYC and Washington DC, 93 million people, for weeks, costing \$243 billion - \$1 trillion. Lloyds is right to be concerned.)

California Legislation: SB-1076 (2017-2018)

Emergency preparedness: electrical utilities: electromagnetic pulse attacks and geomagnetic storm events.

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB1076

This bill requires the office to update the State Emergency Plan to include cost-effective preparedness recommendations to feasibly harden the critical infrastructure of electrical utilities against an electromagnetic pulse attack, geomagnetic storm event, or other potential cause of a long-term outage. It was signed into law by the California Governor Jerry Brown on September 11th, 2018.