Secure the Grid Coalition

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Outside Witness Testimony (OWT) of ***Secure the Grid Coalition*** prepared for
Subcommittee on Interior, Environment, and Related Agencies
of Senate Committee on Appropriations
on USGS Geomagnetism Program in **Department of the Interior**
March 16, 2020

Chairman Murkowski and Ranking Member Udall,

The *Secure the Grid Coalition* is a national organization of critical infrastructure protection and emergency preparedness experts working to shape public policy and to help private industry to secure the nation's most critical infrastructure – the electric grid – against all hazards because we believe, and overwhelming evidence confirms, that without electricity, American civilization ceases to exist.

On March 11, 2020 one of our Coalition's volunteer members, David Jonas Bardin (a retired member of Arent Fox, LLP Washington DC) provided outside witness testimony (OWT) *supporting, with enhancements, the $4.1 million Request for the USGS Geomagnetism Program*. Mr. Bardin, who previously served as the Deputy General Counsel to the Federal Power Commission (now the Federal Energy Regulatory Commission – FERC) has worked diligently, *pro bono*, to analyze the importance of the USGS Geomagnetism Program in relation to science, our economy, and the national security of the United States. His OWT provided a succinct explanation, drawing from the USGS Greenbook Program Overview, on the compelling reasons why Congress and the Executive Branch should ardently support and closely monitor the work of this valuable program.

The purpose of this OWT is to fully endorse the testimony provided by Mr. Bardin, to underscore the premise that USGS' geomagnetism program is directly relevant to America's national security, to amplify that testimony in light of presentations by USGS and Oregon State University (OSU) on February 20, 2020 at the Geomagnetic Disturbance (GMD) Task Force meeting in Salt Lake City, UT, [1] **and to draw out connections between this USGS Program and specific tasks and the inherent intent of the Presidential EMP Executive Order of March 26, 2019 (EO 138651).** [2] We expect to share additional information with your staffs and may submit supplemental OWT.

USGS explained, at the GMD Task Force meeting, *gaps* they have identified in their network of magnetic observatories in the contiguous United States (CONUS),
— which consists of six observatories (Fredericksburg, VA; Stennis Space Station, MS; Boulder, CO; Tucson, AZ; Fresno, CA; and Newport, WA) and two variometer stations (in MN and MT)
— and their preliminary ideas for cost-effective ways to narrow those gaps by installing **three new full-fledged observatories** (in ME, MO, and ID-NV-UT), **renewing one abandoned observatory** (Del Rio, TX), and activating 12 permanent but less costly variometer stations. USGS estimated total installation costs of $4.3M and total annual operating costs of $0.8M for all 16 sites. [3]

—We compliment USGS on planning to make maximum use of existing seismograph stations in CONUS, where USGS already has land, permits, power supply, water, and communications connections.

—We endorse Mr. Bardin's three related asks: That the Subcommittee

(a) enhance this Request, in consultation with USGS, to fund two of the identified 16 sites;
(b) direct USGS to report to Appropriators options and recommendations for closing all gaps USGS has identified, with timetables in future budget cycles, estimated costs and priorities; and

(c) assure itself that the current Request will suffice both to operate *and* address all deferred maintenance backlogs at all 14 USGS ground-based observatories (in Alaska and territories as well as CONUS).

OSU discussed at the GMD Task Force meeting that USGS Geomagnetism Program has designated funds to extend the reconnaissance MT Array in 2020:

- OSU recommends installing ~150 stations in 2020 (plus 40 stations under NASA funding) and (notionally) 154 stations in 2021 for a total of 304 of est. 496 station completions remaining to fill in remainder of CONUS.
- Remainder of installations and potential relocations (for data quality) would happen in 2022 (also potentially 2023 if necessary).
- Details will be finalized pending completion of review of proposal submitted to execute MT Array data acquisition program. [4]

The Secure the Grid Coalition anticipates completion of that review with great interest. [5]

We attach extraordinary importance to two additional factors, which we will discuss with the USGS:

> (1) The critical importance of ensuring rapid, dense MT surveys at sites of electromagnetic pulse (EMP) protection pilot tests/programs currently underway with Department of Energy, Department of Defense, and Department of Homeland Security in accordance with the Presidential EMP Executive Order. [6]
>
> (2) The critical importance of the Gulf Coast region, which currently lacks MT survey, as it is singularly important to the production and transportation of energy resources used in generating electric power, for transportation, and for commerce for the United States of America.

The spirit of the EMP Executive Order was to mobilize the nation to undergo rapid preparedness for an EMP event, regardless of whether it was to occur from an adversary, or mother nature via solar weather. Wisely, Congress passed the 2020 National Defense Authorization Act [5] and, in Section 17402, codified into law many of the Executive Order's provisions. Of note for your subcommittee, Section C – Research and Development – directed the Secretary of DHS, "in coordination with the heads of relevant Sector-Specific Agencies," ''without duplication of existing or ongoing efforts," to "conduct research and development to better understand and more effectively model the effects of EMPs and GMDs on critical infrastructure."

A vital component of grasping effects of EMP and GMD on critical infrastructure is understanding the magnetotelluric makeup of the earth's crust and upper mantle immediately surrounding that infrastructure. The USGS Geomagnetism Program must play a critical new role – first funded by the FY 2020 appropriation approved Dec. 20, 2019 – in enabling DHS and other government agencies to complete tasks assigned in the Executive Order and the NDAA in relation to EMP and GMD. We intend to provide additional suggestions to USGS on how the Geomagnetism Program can connect to DoD, DHS, DOE and private industry efforts currently underway to realize specific tasks and the inherent intent of the Presidential EMP Executive Order.

Our *Secure the Grid Coalition* stands ready to assist your Subcommittee in every way possible to continue resourcing what is an immensely valuable program for our national security. Please don't hesitate to contact us at info@securethegrid.com

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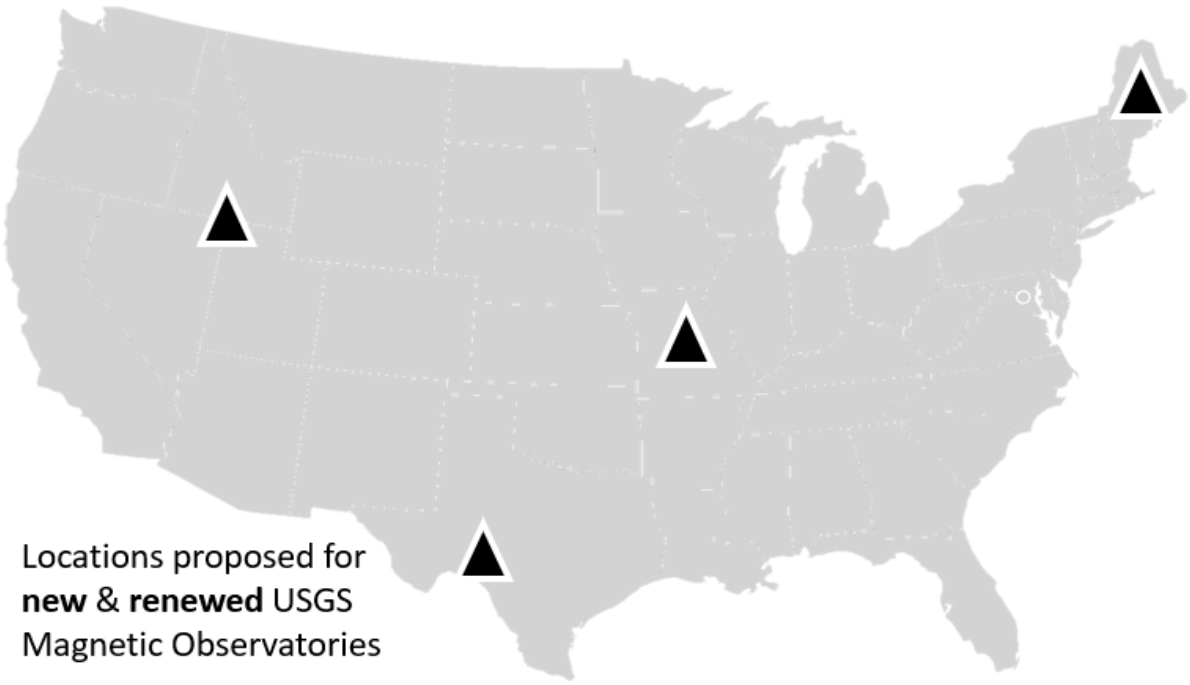

Endnotes:

[1] Agenda (Draft) Geomagnetic Disturbance Task Force (GMDTF), https://www.nerc.com/comm/PC/Geomagnetic%20Disturbance%20Task%20Force%20GMDTF%202013/Agenda_gmdtf_package_feb_20.pdf, totals 314 PDF pages. (Accessed March 12, 2020.) USGS slides are at PDF pages 64-71 and 301-305; OSU slides are at PDF pages:72-108.
[2] Executive Order 13865, available at: https://www.govinfo.gov/content/pkg/FR-2019-03-29/pdf/2019-06325.pdf (Accessed February 11, 2020).
[3] PDF page 65 of 314 in endnote [1] source.
[4] PDF page 87 of 314 in endnote [1] source. (Compare PDF page 66 of 324.) At the GMD Task Force meeting, we also learned that remaining NASA funding for MT survey may not cover as much of CA, NV, and AZ as USGS hopes / anticipates because MT Survey may need more funding (and an extension of data collection into 2023) to install or redo some California sites due to permitting delays for sites on BLM land and for quality reasons and because each MT site may require extra weeks of field work during the solar cycle's current low-activity period.
[5] Public Law 116-92, available at: https://www.congress.gov/116/bills/s1790/BILLS-116s1790enr.pdf (Accessed February 11, 2020).
[6] We have learned that USGS sees a need to follow up the reconnaissance Survey with a denser Survey in some areas due to high geo-hazard and/or extremely critical infrastructure, for national security reasons — which we would strongly support.