Supplemental Document to the Testimony of

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"To Examine the Threat Posed by Electromagnetic Pulse and Policy Options to Protect Energy Infrastructure"

Exercises

The electric sector plans and regularly exercises for a variety of emergency situations that could impact their ability to provide electricity. The industry participates in many incident response exercises, including five national-level exercises since November 2015.

I. **GridEx III** *(NERC, November 2015)* gathered more than 360 organizations and 4,400 participants from industry, government agencies, and partners in Canada and Mexico. GridEX III also included an executive tabletop exercise where 32 electric sector executives and senior U.S. government officials worked through incident response protocols to address widespread outages.

II. **Clear Path IV** *(DOE, April 2016)* convened 200 participants from the oil and gas and electric power industries and federal and state officials to test response and restoration protocols to a catastrophic simulated earthquake and tsunami in the Pacific Northwest.

III. **Cascadia Rising** *(FEMA, June 2016)* was a three-day exercise that tested first responders and government emergency personnel responders and government emergency personnel responses in the immediate aftermath of a significant earthquake.

IV. **Cyber Guard** *(DOD/NSA, June 2016)* was a two-week exercise that tested the response capabilities of 1,000 energy, IT, transportation, and government experts to a major cyber-attack.

V. **Joint Financial Services – Electric Sector Cyber Exercise** *(Treasury, August 2016)* examined incident response capabilities and interdependencies between the two sectors.

Spare Equipment Programs

Electric companies regularly share transformers and other equipment to improve grid resilience from a range of threats. There are multiple spare transformer initiatives:

I. **Spare Transformer Equipment Program (STEP) -** In 2006, federal energy regulators approved the Spare Transformer Equipment Program (STEP), an electric industry program that strengthens the sector's ability to restore the nation's transmission system more quickly in the event of a terrorist attack. STEP represents a coordinated approach to increasing the electric power industry's inventory of spare transformers and streamlining the process of transferring those transformers to affected utilities in the event of a transmission outage caused by a terrorist attack.

Under the program, each participating electric utility is required to maintain and, if necessary, acquire a specific number of transformers. STEP requires each participating utility to sell its spare transformers to any other participating utility that suffers a "triggering event," defined as an act of terrorism that destroys or disables one or more substations and results in the declared state of emergency by the President of the United States.

Any investor-owned, government-owned, or rural electric cooperative utility in the United States or Canada may participate in the program. Currently over 50 utilities are members.

II. **SpareConnect** - The SpareConnect program provides an additional mechanism for Bulk Power System (BPS) asset owners and operators to network with other SpareConnect participants concerning the possible sharing of transmission and generation step-up (GSU) transformers and related equipment, including bushings, fans and auxiliary components. SpareConnect establishes a confidential, unified platform for the entire electric industry to communicate equipment needs in the event of an emergency or other non-routine failure.

SpareConnect complements existing programs, such as the Spare Transformer Equipment Program (STEP) and voluntary mutual assistance programs, by establishing an additional, trusted network of participants who are uniquely capable of providing assistance concerning equipment availability and technical resources. SpareConnect does not create or manage a central database of spare equipment. Instead, SpareConnect provides decentralized access to points of contact at power companies so that, in the event of an emergency, SpareConnect participants are able to connect quickly with other participants in affected voltage classes. SpareConnect does not impose any obligation on participants to provide any information or to make any particular piece of equipment available. Once connected, those SpareConnect participants who are interested in providing additional information or sharing equipment work directly and privately with each other on the specific terms and conditions of any potential equipment sale or other transaction.

As of March 27, 2017, SpareConnect has 129 member utilities. Seven of the municipal utility members are joint action agencies that participate on behalf of themselves and their 176 municipally-owned utilities. Generation & Transmission (G&T) cooperatives within SpareConnect participate on behalf of 180 distribution

cooperative systems.

III. **Grid Assurance –** Launched in 2016 by six large electric utility companies, Grid Assurance is an independent company created to enhance grid resiliency by giving electric transmission owners faster access to long-lead time critical equipment necessary to recover from catastrophic events that could impact the nation's electric grid. More information is available at http://www.gridassurance.com/#IndustryDriven