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Press Release

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Contact: S&T Public Affairs, 202-254-2385

DHS SUCCESSFULLY TESTS RAPID RECOVERY TRANSFORMERS *Prototypes Sent from St. Louis to Houston, Connected to Grid Within One Week*

Houston, TX – The U.S. Department of Homeland Security’s (DHS) Science and Technology Directorate (S&T) announced today the successful completion of a drill to move, deploy and energize a trio of fast-recovery transformers that would serve as prototypes for the utility industry to dramatically reduce recovery time associated with transformer-related outages.

Extra high voltage (EHV) transformers—critical components of our nation’s electric transmission system with more than 90 percent of all power passing through to consumers—are most vulnerable to sustained outages due to locations in remote substations and are difficult to replace, often taking up to two months to deploy and energize, if a spare is available. EHV transformers can weigh hundreds of tons and are often too large to transport by road.

The drill started March 12 at a transformer manufacturing plant in St. Louis where three smaller and more easily transportable units were disassembled and loaded onto lowboy flatbed trucks for the 800-mile trip to a substation near Houston. There they were off-loaded, re-assembled and fitted with cooling systems, conservers, and bushings and then connected to the grid. By March 17 the units were fully energized and functional, reducing recovery time by approximately 75 percent.

“The probability of a long-term outage is relatively low; however the potential impact is significant, making this an important issue for both the public and private sector to address,” said Sarah Mahmood, DHS S&T program manager in the agency’s Infrastructure Protection and Disaster Management Division. “Through this project, DHS S&T was able to partner with the private sector to develop a solution before experiencing a problem.”

The recovery transformer project team – consisting of DHS S&T, the Electric Power Research Institute (EPRI), transformer manufacturer ABB, Inc. and CenterPoint Energy – developed the extra-high voltage transformer technology that could be deployed and energized within days instead of several weeks. DHS S&T manages this project with EPRI as the principal contractor.

“The successful completion of this drill represents a quantum leap for the electric industry to rapidly replace extra-high voltage transformers in emergency situations,” said Rich Lordan, an EPRI technical executive and recovery transformer project manager. “This demonstrates a way forward for the industry to dramatically reduce restoration time in the event of simultaneous failure of multiple transformers.”

Energy is one of the critical infrastructures that are vital to national security and the economy. In addition to the economic and national security impact, a long-term grid outage could have a significant impact on other critical infrastructure such as communications, transportation, water, etc. due to interdependencies. In 2007, the energy sector cited the need for emergency EHV transformers as a high priority need, based on findings from EPRI’s infrastructure initiative in response to 9/11. In 2008, DHS partnered with EPRI and the utility industry to sponsor the recovery transformer project.

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