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GROUP FILES FORMAL PETITION TO NUCLEAR REGULATORY COMMISSION TO REQUIRE INSTALLATION OF NEW BACK-UP SAFETY SYSTEMS

CONGRESSMAN TRENT FRANKS ADDRESSES FEDERAL ENERGY REGULATORY COMMISSION ON RISKS TO U.S. POWER GRIDS

NASHUA NH—At a press conference in front of the Federal Energy Regulatory Commission on February 8, the Foundation for Resilient Societies announced the filing of a Petition for Rulemaking before the Nuclear Regulatory Commission (NRC). Experts on hand to answer media questions included George Baker, professor at James Madison University and former staff to Electromagnetic Pulse (EMP) Commission; Bronius Cikotas, founder of the Asymmetrical Threat Analysis Response Center; Michael Del Rosso, research fellow of the Claremont Institute and former Chairman of the IEEE-USA Critical Infrastructure Protection Committee; Henry Kluepfel, former EMP commissioner; Charles Manto, president of Instant Access Networks ; and Michael Mariotte, executive director of Nuclear Information and Resource Service. The petition, submitted to the NRC on February 6, proposes requirements for unattended spent fuel pool cooling at nuclear power plants to protect against long-term power grid collapse. The full text of the petition is available at www.resilientsocieties.org.

Immediately after the press conference, Congressman Trent Franks (R-AZ) addressed attendees to an electric reliability technical conference held at the Federal Energy Regulatory Commission. Congressman Franks gave the 1859 Carrington Event as an example of severe space weather that could cause long-term collapse of the North American power grids. As part of later testimony, Avi Schnurr of the Electric Infrastructure Security Council stated that long-term grid collapse is an “existential” threat to the United States.

The rolling blackouts in Texas this past week demonstrated the fragility of the North American power grids and their vulnerability to extreme weather and other natural disasters. The safety of nuclear power plants depends on reliable grid power. Nuclear Regulatory Commissioner Jeffery Merrifield stated in 2006, “A big part of our risk-informed regulatory strategy depends on plants having access to reliable offsite power. We assume that there will be very few times when a plant will be subjected to a total loss of offsite power, and when such condition exists it will be for a relatively short period of time (hours or days rather than weeks).”

According to a recent report released by the Oak Ridge National Laboratory, the North American power grids are vulnerable to severe space weather and could experience widespread and long-term outages persisting 1-2 years. Most nuclear power plants in the eastern United States, as well the Columbia Generating Station in Washington State, are in the area of probable power system collapse as disclosed by Oak Ridge.

Spent fuel pools are currently used at all operating nuclear power plants. Fuel rods continue to generate substantial heat after removal from the reactor core, necessitating active cooling in water pools. There are 104 nuclear power reactors operating in the United States at 65 sites in 31 states. Each site has one or more spent fuel pools. Spent fuel contains a number of radioactive elements resulting from fission within the reactor core, the most significant being Ruthenium-106 with a half-life of one year and

Cesium-137 with a half-life of 30 years. Should spent fuel rods become uncovered by water, the zirconium cladding of the rods would likely catch fire.

While there are multiple scenarios that could cause uncovering of spent fuel rods and result in zirconium fire, for the purposes of the Petition, the most significant scenario is long-term loss of outside power supplied by the commercial electric grid. Current design criteria for nuclear power plants and associated spent fuel pools assume reliable and quickly restored commercial grid power. In the event of a long-term loss of commercial grid power, extending beyond a month, it is likely that water in spent fuel pools would heat up and boil-off, fuel rods would become uncovered by water, zirconium cladding would catch fire, and large amounts of fatal radiation would be released into the atmosphere.

In October 2010, Oak Ridge National Laboratory released [Electromagnetic Pulse: Effects on the U.S. Power Grid](#), a series of comprehensive technical reports for the Federal Energy Regulatory Commission (FERC) in joint sponsorship with the Department of Energy and the Department of Homeland Security. These reports disclose that the commercial power grids in two large areas of the continental United States are vulnerable to severe space weather. The reports conclude that solar activity and resulting large earthbound Coronal Mass Ejection (CME), occurring on average once every one hundred years, would induce a geomagnetic disturbance and cause probable collapse of the commercial grid in these vulnerable areas. Excess heat from induced currents in transmission lines would permanently damage approximately 350 extra high voltage transformers. The replacement lead time for extra high voltage transformers is approximately 1-2 years. As a result, about two-thirds of nuclear power plants and their associated spent fuel pools would likely be without commercial grid power for a period of 1-2 years.

Commercial grid outage of 1-2 years far exceeds the current design criteria for nuclear power plants and associated spent fuel pools. Accordingly, the NRC should adjust design criteria for nuclear power plants and associated spent fuel pools to minimize risk and avoid radiation fatalities.

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