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Group Proposes Solar Panels for Backup Power at Nuclear Plants

Nuclear Regulatory Commission Publishes Proposal in Federal Register and Asks for Comments

Nashua NH (May 26, 2011)—The Foundation for Resilient Societies, a citizen group dedicated to protection of critical infrastructure against natural disasters, has proposed solar panels and other high-reliability power sources to supply backup cooling for spent fuel pools at nuclear plants. Because solar panels do not require ongoing maintenance and continual resupply of fuel, this would contribute toward making spent fuel pools “walkaway safe,” a concept that has recently gained support in the nuclear industry.

Currently, cooling systems for spent fuel pools rely on commercial grid power, with emergency backup power supplied by diesel generators. Only seven days' worth of fuel is typically stored on-site for diesel generators at United States nuclear plants. Because emergency diesel generators have many moving parts, they require ongoing maintenance and are prone to malfunction. A [recent report](#) by the office of Congressman Edward Markey found “recurrent and prolonged malfunctions of emergency diesel generators at nuclear power plants in the U.S.” According to the report, in the past eight years there have been at least 69 reports of emergency diesel generator inoperability at 33 nuclear power plants. The failure of diesel generators at the Fukushima Daiichi nuclear plant in Japan caused overheating and boiling of the spent fuel pools and may have contributed to a fire and explosion at Fukushima Daiichi Pool No. 4.

Under the Foundation's proposal, backup cooling for spent fuel pools would operate for up to two years without resupply of fuel and also without intervention by human operators. In the event of explosions or radiation releases adjacent to spent fuel pools—such as happened at the Fukushima Daiichi nuclear site—plant personnel could evacuate without immediate concern that spent fuel pools would boil off, potentially catch fire, and release large amounts of radioactive material.

The Foundation first sent its proposal to the Nuclear Regulatory Commission (NRC) on February 6, 2011 as a draft Petition for Rulemaking. If approved, the petition would modify the licensure conditions for all 104 operating nuclear power plants in the United States. A final Petition for Rulemaking was submitted by the Foundation to the NRC on March 14, only two hours before an explosion and fire at Fukushima Daiichi Pool No. 4 resulted in substantial radiation release.

The NRC has assigned a [Docket Number of PRM-50-96](#) to the Foundation's proposal. A summary of PRM-50-96 has been published in the Federal Register, along with a request for comments by the nuclear industry and other interested parties. The deadline for comments is July 20, 2011. Currently, PRM-50-96 is the only Petition for Rulemaking on the NRC docket for 2011.

The NRC has provided coverage of the PRM-50-96 on its [Emergency Preparedness and Response Blog](#). Prior to the NRC request for comments in the Federal Register, individual citizens unaffiliated with the Foundation had asked the NRC to address the petition.

“As you, at the NRC well know, the disaster in Japan was not caused by an earthquake or tsunami, it was caused by a loss of power to the cooling systems of the plant to the reactor core and spent fuel pools. The earthquake was merely the catalyst that started the SBO [station blackout] event. When anyone reading this looks at the pictures of those destroyed reactor buildings in aerial photographs, realize this is what a nuclear plant looks like when it losses power for a couple of days, and this can and most likely will happen in the US,” stated a citizen identified as Trent Sikes in the NRC blog.

“I would like to second what the gentleman above me stated, how can you not have a plan for a black out lasting a long time[?] After reading this post I started looking around and found that you have a petition

before you now I believe it is PRM-50-96 that gives solutions to this problem," commented Lisa Ansell.

"Would also like to know how the NRC ever approved any plants when there was no plan for a long power disruption or being able to shut down plants if operators were prevented from getting to work...If someone has made a petition that will fix this mess then I would like it put into effect as well," urged Lee McLeod.

Responding to these public entreaties, Sara Mroz, moderator for the NRC blog and emergency preparedness specialist, wrote, "The Petition for Rulemaking PRM-50-96 was posted in the Federal Register on May 6, 2011 and public comments are being sought. The petition requests that the NRC amend its regulations regarding the domestic licensing of special nuclear material to require production and utilization facilities licensed by the NRC to assure long-term cooling and unattended water makeup of spent fuel pools."

The Foundation for Resilient Societies is not an antinuclear group. The Foundation recognizes that 20% of United States baseload power generation is supplied by nuclear power plants. Widespread shutdown of nuclear plants would reduce reserve generation capacity and could degrade overall electric grid reliability.

For more information, contact Thomas Popik at thomas.popik@resilientsocieties.org or 603-321-1090. The full text of Petition for Rulemaking PRM-50-96 can be downloaded at www.resilientsocieties.org.

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