

Russia's Disregard for Nuclear Safety and Security in Ukraine

Department of Energy / National Nuclear Security Administration (DOE/NNSA)
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From the outset of Russia's full-scale invasion of Ukraine in 2022, disregard for the principles of nuclear safety and security has been a persistent feature of Russia's misconduct. In particular, Russia has threatened the safe operation of Ukrainian nuclear power plants, raising the risk of a nuclear emergency whose effects would be felt far from the borders of Ukraine.

One year ago, on March 4, 2022, Russian military forces attacked and seized the Zaporizhzhya Nuclear Power Plant (ZNPP), the largest nuclear plant in Europe and the scene of profound Russian irresponsibility before and after its capture. The armed seizure of an operating civil nuclear power plant—and the pitched combat that took place around the site for months afterward—was unprecedented in the history of warfare. Because of nearby military activity, ZNPP has experienced episodic losses of off-site power, which is critical to the safe operation of the plant. Further, credible reports implicate Russian personnel in systematically mistreating the Ukrainian staff at ZNPP, including unwarranted detention and even physical abuse.

Although ZNPP has been the scene of some of Russia's most serious misconduct in Ukraine, its disregard for nuclear safety and security has been widespread throughout the conflict:

- ▶ **FEBRUARY 2022:** In the first hours of the invasion, Russia seized and subsequently looted the Chornobyl Nuclear Power Plant, using the site as a staging ground for its attempt to capture Kyiv.
- ▶ **FEBRUARY 2022:** A Russian missile struck a radioactive source facility outside Kyiv.
- ▶ **MARCH 2022:** Russia launched strikes against the Kharkiv Institute for Physics and Technology.
- ▶ **JUNE 2022:** Russia conducted repeated strikes against a radiological storage facility near Kharkiv.
- ▶ **AUGUST 2022:** Shelling near ZNPP's spent fuel storage facility damaged the plant's external power supply system.
- ▶ **AUGUST 2022:** Shelling at ZNPP damaged facilities and caused a temporary power cutoff.
- ▶ **SEPTEMBER 2022:** Additional shelling damages ZNPP back-up power lines.
- ▶ **SEPTEMBER 2022:** Russia conducted strikes against the South Ukraine Nuclear Power Plant.
- ▶ **OCTOBER 2022:** Massive Russian strikes occurred against Ukrainian energy infrastructure, threatening the reliability of offsite power to Ukraine's nuclear power plants.
- ▶ **OCTOBER 2022:** Russia conducted air strikes in multiple oblasts, damaging electric substations and critical infrastructure.
- ▶ **NOVEMBER 2022:** Russian military strikes cause all of Ukraine's operating nuclear power plants to lose offsite power and temporarily revert to emergency generators.
- ▶ **JANUARY 2023:** Russian missile attacks damaged buildings at the Kyiv Institute for Nuclear Research.
- ▶ **FEBRUARY 2023:** Russian strikes hit thermal and hydro-generation facilities and high-voltage infrastructure in six regions.

The Kremlin is fully aware of the nuclear risks in Ukraine stemming from Russian military activity but has prosecuted its campaign against Ukraine's nuclear facilities and civilian infrastructure heedless of the repercussions.





DOE/NNSA NUCLEAR RISK REDUCTION ASSISTANCE TO UKRAINE

DOE and NNSA have provided considerable assistance to reduce nuclear risks in Ukraine stemming from Russia's irresponsible behavior.

Remote Monitoring Capabilities

NNSA's Nuclear Emergency Support Team (NEST) scientists continuously monitor data from radiation sensors in Ukraine and the region to ensure awareness of the status of Ukraine's nuclear facilities. Sensor data would provide early warning of an emergency at these facilities and allow NEST scientists to provide technical guidance to Ukrainian partners to protect public safety.

Risk Mitigation at Nuclear Power Plants

DOE and NNSA are providing critical assistance to bolster Ukraine's capacity to safely operate its nuclear power plants, including equipment for emergency grid infrastructure repair, support vehicles, emergency diesel generators, and diesel fuel and other consumables. DOE and NNSA have also provided training for Ukrainian emergency responders to minimize the impact of any nuclear emergency.

Emergency Operations Center Hotlines

The DOE Emergency Operations Center has established direct communications channels with the emergency operations centers of Ukrainian partner agencies to provide real-time assistance in the event of a nuclear emergency, exercise, or planning activity.

Capacity Building

NNSA has provided capacity building and training to partner agencies in Ukraine and throughout the region to support nuclear and radiological safety, security, and emergency response capabilities. Training and workshops and provision of specialized equipment will remain a priority long after the war ends. Capacity building includes courses on nuclear and radiological safety and security, aerial radiological measuring, atmospheric plume modeling, countering unmanned aerial systems, counter nuclear smuggling, cybersecurity, insider threat mitigation, medical response to radiation emergencies, radiological source recovery, transport and site security, and consequence management.

