People walk outside the Zaporizhzhia Nuclear Power Plant in the course of Russia-Ukraine cor

People walk outside the Zaporizhzhia Nuclear Power Plant in the course of Russia-Ukraine conflict outside Enerhodar in the Zaporizhzhia region, Russian-controlled Ukraine, March 29, 2023. (OSV News/Reuters/Alexander Ermochenko)

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Russia's seizure of Europe's largest nuclear power plant in Ukraine has undermined global nuclear security, while serving as a "wake-up call" to ending energy dependence on Russia, said experts at a recent panel discussion hosted by a Catholic college.

On April 27, Manor College in Jenkintown, Pennsylvania, held its annual "Ukraine Dialogue," an in-depth discussion of critical issues affecting Ukraine. The dialogue series continues the commitment of the school — which was founded by the Sisters of the Order of St. Basil the Great — to fostering Ukrainian heritage and spirituality, and to serving as a locus of broad support for Ukraine amid the full-scale Russian invasion following attacks begun in 2014.

This year's forum, which took place online, examined "Russia’s wartime incursion of the Zaporizhzhia Nuclear Power Plant (ZNPP)" located on the Dnipro River in southeastern Ukraine.

Panelists were Riaz Awan, vice president of Ukraine operations for Holtec International, a diversified energy technology company; Michael E. Kirst, a Brussels-based energy consultant and former Westinghouse Electric Co. global executive; and Michael Mittelman, president of Salus University in Elkins Park, Pennsylvania, and former deputy surgeon general of the U.S. Navy.

Moderating the dialogue was retired American diplomat Roman Popadiuk, the first U.S. ambassador to Ukraine, who served under George H.W. Bush's administration.

Manor College President Jonathan Peri opened the forum with a prayer composed by Metropolitan Archbishop Borys Gudziak, head of Ukrainian Catholics in the U.S., asking that God "sustain the people of Ukraine and teach them to be devoted to justice and peace ... (as they) defend their land from foreign attacks."

Popadiuk presented an overview of the status of ZNPP, operated by Energoatom and consisting of six VVER-1000 pressurized light water reactors. Russian forces took over ZNPP March 4, 2022, leading to repeated losses of the off-site power required to safely operate the plant, where staff have been subjected to detention, threats and physical assault by Russian troops.

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"This is the only time that a nuclear power plant has been involved in an active war zone," said Popadiuk, noting that "the Russians have been using (ZNPP) as a base from which to shell Ukrainian forces and ... at the same time to disrupt Ukrainian electrical power."

Efforts to demilitarize the zone around ZNPP, under the leadership of the International Atomic Energy Agency (IAEA), have "gone nowhere," he said, noting that Ukraine has been unable to return Russian fire from ZNPP for fear of incurring "(catastrophic) radioactive spillage."

In addition to ZNPP's seizure and Russia's "veiled threats" to use "tactical nuclear weapons," nuclear energy has loomed large in Ukraine's history over the past 40

years, said Popadiuk.

The 1986 Chernobyl nuclear disaster took place while the nation was still part of the former Soviet Union. After gaining independence in 1991, Ukraine voluntarily surrendered its nuclear arsenal — at the time, the world's third largest — in exchange for security assurances from the U.S., the United Kingdom and Russia as part of the 1994 Budapest Memorandum.

Awan, speaking from Ukraine, said that Russia's "military use of a nuclear power plant for battlefield advantage" ultimately "undermines the security of nuclear power (operations) in more than 30 countries worldwide.

"Russia's behavior in Ukraine is a violation of all the normal principles and ... all the norms, standards and functions of the International Atomic Energy Agency," said Awan.

In a Feb. 23 report, IAEA director Raffaele Grossi said that "every single one" of his agency's "seven indispensable pillars for ensuring nuclear safety and security in an armed conflict has been compromised in Ukraine," including the facilities' physical integrity, safety and security systems, working conditions, radiation monitoring, supply chains, communication channels and "crucial off-site power supply.

"The actions of the Kremlin and (Russian President Vladimir) Putin at ZNPP represent a new dimension in warfare and are a clear violation of international humanitarian law," Awan said.

Pope Francis speaks with Rafael Grossi, director general of the International Atomic Energy A

Pope Francis speaks with Rafael Grossi, director general of the International Atomic Energy Agency, during a meeting Jan. 12, 2023, in the library of the Apostolic Palace. Grossi said they discussed the threat of a disaster from bombings of a nuclear power plant in Ukraine. (CNS photo/Vatican Media)

Kirst said "five of the six" ZNPP reactors are currently in "cold shutdown," defined by the IAEA as a state in which a reactor's pressure vessel temperature is less than 100 degrees Celsius, radioactive material release is under control and public radiation exposure is significantly in check. The remaining reactor is in "hot shutdown" to provide power to ZNPP's safety systems, he said.

Ukrainians "have done an outstanding job under very difficult circumstances to ensure" the safety of the plant "even though it has been weaponized," said Kirst. "I don't think we're in any immediate or impending danger of some kind of ... meltdown.

Kirst added, "I think the Russians realized it would be working against their own intentions by creating a nuclear disaster."

Mittelman, who directed the U.S. military medical response to the 2011 earthquake and tsunami that damaged the Fukushima nuclear power plant in Japan, said that any disaster at ZNPP would generate "a plume of radioactivity particles ... in the direction of the prevailing wind," which blows in Ukraine toward Russia.

At the same time, Mittelman cautioned, "if the Russians do something silly ... there's no quick fix for any of this, especially when you're talking about the public health implications."

Transparency, monitoring and clear communication are vital amid a nuclear emergency, as is international and interagency cooperation, he said, stressing the need to plan ahead in case of disaster.

Kirst said ZNPP's seizure also signals the need to address the fact that the U.S. is "still highly dependent on Russia for nuclear supplies," specifically enriched uranium.

In 2021, U.S. nuclear power plant operators obtained 81% of their enriched uranium — which fuels the reactors — from foreign sources, with Russia accounting for 28% of the share, according to the U.S. Energy Information Administration.

Such statistics are "a wake-up call" to the U.S., Kirst said, calling for "consequences" for Russia seizing ZNPP, such as increased sanctions and elimination of Russia's access to nuclear industry supply chains, along with greater inclusion of Ukraine in building the global future of nuclear energy.

"Ukraine can be a leader ... in this space," he said. "Europe and Ukraine can mutually reinforce each other for energy security."

This story appears in the **War in Ukraine** feature series. View the full series.