

WHAT IS NUCLEAR ENERGY'S FUTURE?

TENNESSEE WILL PLAY A BIG ROLE



The 2024 Nuclear Opportunities Workshop, or NOW Conference, addressed why now is the time for Tennessee to be all-in on what industry experts are calling a nuclear renaissance. The 2025 conference brought in 1,000 attendees who are “experts in nuclear fission and fusion energy, national security, radioisotopes, environmental management, policy, regulation, reactors and workforce,” according to the East Tennessee Economic Council. ANGELINA ALCANTAR/ NEWS SENTINEL

Mariah Franklin Knoxville News Sentinel | USA TODAY NETWORK – TENNESSEE

There’s reason to think a future friendlier to nuclear energy is coming. • Vladimir Sobes, an associate professor of nuclear engineering at the University of Tennessee at Knoxville, says the numbers tell part of the story. • “Literally, in the last three years we have tripled the undergraduate class,” Sobes said. “The young population, the young generation, is seeing nuclear on the rise and they’re excited and committed to it.” • A standard class in past years amounted to about 40 students, he said. Now, the department has 120 freshmen.

UT’s nuclear engineering department is one of the best, according to the U.S. News & World Report, which placed the department’s graduate program third nationally. The department also benefits from close ties with institutions like the Oak Ridge National Laboratory, which is managed by UT-Battelle, a partnership between the university

and the nonprofit Battelle Memorial Institute.

Sobes isn’t alone with his optimism. He and others recently talked over the future of nuclear power in a moderated conversation at UT with The Nuclear Company, a South Carolina startup that was visiting the university on a 14-site bus tour promoting its business and

nuclear generation. The stops included screenings of a documentary called “The Nuclear Frontier,” which served as a prompt for discussing the path forward for nuclear energy.

It’s a high-stakes debate, the company’s chief nuclear officer, Joe

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Nuclear future

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Klecha, told an audience at the university's Baker School of Public Policy and Public Affairs. America needs to increase its nuclear energy generation if it hopes to keep up with China and Russia, Klecha said during the panel, repeating a key theme of the documentary.

The Nuclear Company exists to build and run nuclear reactors in the U.S., and a May filing with the Securities and Exchange Commission showed the company recently raised \$46 million toward that end. Its leaders are hoping to build more nuclear power through partnerships with other private companies and utilities.

Increasing domestic nuclear energy production is a priority for the administration of President Donald Trump, who's signed a series of executive orders aiming to "unleash American energy" as power demand increases for the first time in decades. It's a project with deep roots in East Tennessee. More than 150 nuclear companies are based in or operate in Knoxville and Oak Ridge.

The Nuclear Company itself doesn't have tight business ties to East Tennessee at this point, Klecha told Knoxville News, but it's open to the prospect going forward.

Nuclear on an upswing across the US, with strong East Tennessee ties

If UT's numbers represent a broader trend of research interest in the U.S. nuclear sphere, they're a break with the recent past.

An analysis from the International Energy Agency shows the U.S. has slowed low-carbon energy research spending on nuclear technology since the 1990s. But Greg Boerschig, vice president of the Tennessee Valley Authority's Clinch River reactor project, said there's support for nuclear power across political party lines.

Both former President Joe Biden, a Democrat, and Trump, a Republican, have backed nuclear generation, which accounts for a little less than 20% of utility-scale generation.

"This is really the first time in my career that we've seen bipartisan support for the industry," Boerschig said.

In Tennessee, officials are mostly aligned when it comes to nuclear energy, according to Tracy Boatner, president of the East Tennessee Economic Council. And recent nuclear waste cleanup efforts have made a difference to East Tennessee's place in the nuclear space, Boatner said.



Susan Morris, deputy manager of the National Nuclear Security Administration – Y-12 office, speaks to the media as demolition of the Alpha-2 Complex continues at the Y-12 National Security Complex in Oak Ridge on July 8. The complex was built for uranium enrichment operations as part of the Manhattan Project and once housed the equipment monitored by the famous "Calutron Girls." BRIANNA PACIORKA/NEWS SENTINEL



John Canik shows a model of a stellarator created by his nuclear fusion company, Type One Energy, in Hardin Valley on March 26. CAITIE MCMEKIN/NEWS SENTINEL

Boatner noted dozens of nuclear firms have moved to Oak Ridge.

"Probably most of these announcements would not have happened if we had not had the cleanup of the legacy waste from the Manhattan Project and the Cold War that enabled us to free up the land so that we could have these projects coming to our state," she said.

What's holding back nuclear power in East Tennessee, U.S.?

Recent decades have seen America's nuclear capacity stagnate, according to a report from the Council on Foreign Relations, a think tank focused on international policy. Nuclear development is expensive and time-consuming, making it a heavier political lift than some

other forms of energy.

Tim Fitzgerald, an economist and professor with the Baker School, said the federal future of nuclear energy rests on executive orders from the Trump administration.

"To use the parlance of the nuclear industry: We've had a first mover," Fitzgerald said, referring to the Trump administration. "We haven't yet had a fast follower. And it is not clear that the policy process is going to deliver."

Positions that haven't been filled and federal restructuring adds to uncertainty on the policy front, he said. The Trump administration's National Energy Dominance Council also lacks a clear structure, Fitzgerald said, as well as "a clear vision on the value of clean, emission-free power that nuclear can provide."

The supply chain also presents some challenges.

"You can't get large forgings in the United States for commercial nuclear steam supply components," Boerschig said.

Getting that capacity to the U.S. would be helpful in fulfilling East Tennessee's nuclear potential, he said.

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