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Texas A&M has big plans for building small nuclear reactors for its program in College Station

Aggies have big plans for small reactors at nation's largest nuclear program. The Texas A&M campus at College Station could see multiple experimental reactors built over the next decade.

By **Chris Tomlinson**, *Columnist*
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Texas A&M campus on Wednesday, July 3, 2024, in College Station.
Ishika Samant/Staff photographer

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COLLEGE STATION – Texas A&M has big plans for small reactors as it expands the nation's largest nuclear engineering program and partners with six startups to develop new power plant technologies.

The first experimental reactor could be running as early as July, and five other private companies have plans to build pilot projects. The new reactors are small enough to ride on the back of a truck or fit inside a grocery store.

Texas A&M's nuclear engineering program has 550 students, 23 faculty and a 60-year-old small research reactor operating near the College Station airport. University officials say their RELLIS Research Campus will become an energy proving ground to fulfill Gov. Greg Abbott's desire to make Texas ground zero for next-generation U.S. nuclear.

However, many Texans fear and oppose new nuclear facilities, despite two power plants operating without incident for more than 50 years near Houston and Dallas-Fort Worth. The federal government has also failed to obey a 1982 law requiring the construction of a permanent waste disposal site.

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Critics also question whether new nuclear will be affordable. The reactor designs are untested, and project costs frequently spin out of control.

Texas A&M's Engineering Experiment Station hosted an open house on Monday to rally support from political and business leaders. David Staack, deputy vice chancellor for research, said faculty, students and entrepreneurs are working to develop safe, reliable and affordable sources of electricity.

“The initiatives we're trying to do are to improve economic development locally, to solve the needs of the state and region in terms of power, to obviously give test beds for industry in order to de-risk (technology) and allow the state to invest in companies in a more efficient manner,” he said. “Then also to supply the workforce to these companies.”

Texas, along with most of the country, is demanding additional electricity faster than new supply is coming online. Companies like Google, Amazon and Facebook are building enormous data centers and artificial intelligence facilities, while cryptocurrency miners, factories and electric vehicles require additional power.

Coincidentally, generators are shutting down 50-year-old coal plants as they wear out. Most new power generation comes from solar and wind facilities with battery storage systems and natural gas plants.

Some agencies estimate U.S. electricity demand could double over the next decade. Hundreds of small nuclear reactors scattered across the country are the answer, advocates say.

Nuclear Renaissance?

Dozens of startups have new designs they claim are safer than old-school reactors and can be mass-produced in factories. While a reactor at the South Texas Project

generates about 1,350 megawatts of electricity, enough for 675,000 homes, these small modular reactors range between 2 megawatts and 200 megawatts.

Austin-based Last Energy says its new design will begin splitting atoms in July. The company's 20-megawatt design is a version of the pressurized water reactors used on U.S. Navy aircraft carriers, said Adam Lenarz, the company's vice president for development.

Other companies planning reactors in College Station include Terrestrial Energy, Natura Resources, Kairos Power and Aalo Atomics, which use molten salt for improved safety. Designers say these advanced reactors will shut down on their own without releasing radiation.

"If there's a power loss, if there's a winter storm, if there's an earthquake, these may be referred to as 'walk-away safe,'" Staack said.

The persistent safety challenge is what to do with spent fuel. A speaker from the American Nuclear Society, a trade group, described how politicians and environmentalists have blocked attempts to build an underground, long-term storage facility or allow the reuse of old fuel rods. As a result, concrete casks of spent rods are piling up at nuclear plants across the country.

For me, safety is not the main issue. Fossil fuel pollution causes more than 5 million premature deaths a year, a Harvard University study showed, compared to a handful a decade from nuclear energy. Nukes are expensive.

Solar power with battery storage ranges from $50-$131 per megawatt-hour, onshore wind with storage is $44-$123 per megawatt-hour, and natural gas is $48-$107 per megawatt-hour, according to Lazard, a financial advising firm.

Energy from the brand-new Vogtle nuclear plant in Georgia costs $169-$228 per megawatt-hour. While there are no commercial small modular reactors operating, the U.S. Energy Information Administration ventures an optimistic guess of $110-$118 per megawatt-hour.

Nuclear energy offers reliable power without emissions, but the soonest we'll see commercial generation is 2030. Texas A&M's research is impressive, but these reactors will make our hot summers and cold winters much more expensive.

Award-winning opinion writer Chris Tomlinson writes commentary about money, politics and life in Texas. Sign up for his "Tomlinson's Take" newsletter at houstonchronicle.com/tomlinsonnewsletter or expressnews.com/tomlinsonnewsletter.