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Technology

NM's Quantum Moonshot one of four invited to \$160M proposal round



Image: Office of the Governor

Alex Greenberg, Economic Development Policy Advisor for the New Mexico Governor's Office.

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The New Mexico Quantum Moonshot, [a collaborative initiative](#) between national laboratories, universities and private sector entities, has been invited as one of only four groups nationwide to submit a full proposal to the National Science Foundation's (NSF) Regional Innovation Engines program, according to a news release.

The full scale of this opportunity is more than \$500 million if the collaborative group is successful, according to Alex Greenberg, economic development advisor for the New Mexico Governor's Office.

The Quantum Moonshot initiative focuses on two prongs to propel the industry ecosystem forward, according to a news release:

- **Grand challenges:** With the intent to accelerate the development of quantum innovations, grand challenges will link teams of experts with core partners to include Sandia National Labs, Los Alamos National Labs, and others.
- **Place-based capacity building:** This prong will bridge the gap between research and real world applications, especially around workforce, entrepreneurial endeavors and infrastructure.

New Mexico signed on to support [the Elevate Quantum Tech Hub](#), through the U.S. Economic Development Administration (EDA), in late 2023 and earlier this year, Greenberg.

Compared to the Elevate Quantum Tech Hub, the NSF Regional Innovation Engines program is more New Mexico-based, according to Greenberg. "The core sort of strategy is creating technologies that are dual purpose, so that have some kind of national security application and also a commercial application," he added.

The NSF Regional Innovation Engines program was authorized under the CHIPS and Science Act of 2022, and, according to the NSF's website, awards federal dollars to regional innovation ecosystems "that have not fully participated in the technology boom of the past few decades."

The group [was awarded](#) over \$127 million in new capital for the region, mostly for Colorado but with some capital going to New Mexico, and were notified around July 2024, according to Greenberg. This includes \$40.5 million in initial EDA funding from the Department of Commerce, \$77 million in matching funds from Colorado, and \$10 million from New Mexico.

The group started working on their initial submission for the NSF Regional Innovation Engines program, part two of a program run in previous years, and [submitted it in August](#). They heard back this fall that they'd been invited to submit a full application.

There are six co-PI's, or principal investigators, which are leaders on a grant-funded project. PI's on the project include individuals at labs and universities and some private sector people in Colorado, all working on the full application.

"It's really inspirational, because I could argue that [the project includes] some of the best minds in the country," said Greenberg, including decorated Ph.D.s at labs and universities, and innovative systems engineers. "They're all very excited about this new technology class that has an opportunity to create significant economic disruption," he added.

The full application is a 30-page version of the concept paper previously submitted and [according to the NSF website](#), is due February 11.

The opportunity is exciting, according to Greenberg, because it would provide up to \$160 million over ten years to project teams trying to create groundbreaking technology and bring it to market.

If Moonshot were to win, its five project teams would receive initial funding, and then a selection would take place after the first two years to see which technology pursuits are most viable.

Funding from the federal government is likely just the beginning, according to Greenberg. "... because you could imagine a world where the private sector would be very engaged in trying to bring this to market, and like the other federal appropriations that would go after and so, you know, the full scale this opportunity could be north of \$500 million if we were to be successful."

Greenberg said the group is responsible for two things. First, making sure the 30-page proposal is competitive, and second, to keep up momentum on what is, "intrinsically a really worthwhile effort." This means ensuring either through the state or private sector, that the collaborative group continues its work with or without this NSF funding.

The core strategy is to create dual purpose technologies with national security and commercial applications. Quantum has new core competencies, but post-quantum cryptography, the idea that a quantum computer can effectively create a skeleton key for the internet, is propelling the United States to reach quantum computing capabilities first, Greenberg added.

The Mountain West and a partnership with Colorado

“We’re using [Colorado’s] private sector to collaborate with our research and development institutions to try to drive this,” said Greenberg.

Greenberg explained historically, the “magic triangle” of innovation includes the public sector, private sector, and academia, and New Mexico doesn't have a strong private sector in quantum technologies right now.

Colorado contains a lot of private sector activity, he added, and a great university system. However, they do not have the resource and development tools available in New Mexico through the national labs.

The history of quantum, according to Greenberg, has a significant connection to New Mexico. One father of the concept of quantum computing was Richard Feynman, Ph.D. who worked as an intern on the Manhattan Project, memorialized through the Richard P. Feynman Center for Innovation at Los Alamos.

“You can sort of see the roots all the way from the Manhattan Project, the first time New Mexico pioneered applied physics through Richard Feynman, who wrote some of the earliest papers in the world on quantum computing, which trickled out through the ecosystem,” said Greenberg.

The [University of New Mexico](#) was one of the first quantum information science research centers in the entire world, Sandia National Laboratories currently [has an open access quantum computer](#), according to Greenberg.

“You won't be able to tell the history of quantum without New Mexico,” he said adding it is important New Mexico takes a significant role in the future of the industry as well.