



U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON **SCIENCE, SPACE, & TECHNOLOGY**

Opening Statement

Ranking Member Zoe Lofgren (D-CA)

Advancing American Leadership in Quantum Technology

June 7, 2023

Thank you, Chairman Lucas, for holding today's hearing. I would also like to welcome our distinguished panel of witnesses.

One of the joys of serving on the Science Committee is that we are the committee of the future. Today's hearing is truly about the technology of tomorrow. In 2018, this Committee led the development of the bipartisan National Quantum Initiative Act, a whole-of-government research initiative on a topic that seems ripped out of the pages of a science fiction novel: quantum information science.

By all accounts, the first five years of this initiative have been a resounding success. The initiative galvanized the U.S. science community around quantum technologies and has made our country the world leader in most quantum applications. I was an original cosponsor of the Act in the 115th Congress, and I am looking forward to partnering with the chairman in considering a reauthorization of the National Quantum Initiative Act.

The first five years of the National Quantum Initiative, or NQI, focused primarily on the fundamental scientific advances needed to make quantum systems work. While investments in fundamental research will continue to be essential over the next five years, we must begin to invest more in the human and physical infrastructure that will enable us to move quantum technologies from lab to market. In Silicon Valley, not far from my own district, companies such as D-Wave and Rigetti Computing are already building hybrid quantum computers that can address novel computing challenges.

While these two companies are among many companies developing quantum technologies, the nascent U.S. quantum industry faces significant hurdles to continuing its growth and meeting its potential to secure U.S. leadership in quantum technology.

The first of these challenges is preparing a quantum-ready workforce. The NQI has not yet had a major focus on quantum education and workforce development. In the CHIPS and Science Act, Congress updated the National Quantum Initiative Act to promote early introduction to quantum concepts and quantum science among middle school and high school students. A few universities have created their own interdisciplinary quantum science and engineering degree programs. However, significant hurdles remain to enabling a quantum ready workforce at all levels from the skilled technical workforce to the doctoral level. One important topic for this hearing is understanding those hurdles and exploring the role of the Federal science agencies in addressing them.

The next challenge is infrastructure. Enabling our universities, Federal labs, and start-up companies to conduct quantum experiments and develop and demonstrate quantum technologies requires state-of-the-art research infrastructure. This is a multi-layered challenge. The National Institute of Standards and

Technology, one of the key Federal agencies charged with conducting quantum research, is in a crisis of failing infrastructure and unmet maintenance needs. The Department of Energy labs face similar challenges. We are asking our Federal scientists to conduct exquisitely sensitive experiments in woefully outdated labs. In addition, universities and small companies across the country will need access to specialized equipment that they cannot afford on their own.

As we look further into the future, there will be additional challenges that we can start preparing for today. Mathematicians theorize that the day will come when someone builds a sufficiently powerful quantum computer to break modern encryption algorithms. I sure hope it is a U.S. lab or company that does so. The question for us today is what we need to do to make that hope a reality.

I look forward to the discussion today to learn how a reauthorization of the National Quantum Initiative Act can help to address these challenges.

Thank you and I yield back.