SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION:
QUESTIONS FOR THE RECORD
FROM THE NOMINATIONS HEARING
ON APRIL 29, 2021

Written Questions Submitted to Eric Lander, Nominee to be Director of the Office of
Science and Technology Policy

Submitted by Ranking Member, Senator Roger Wicker

**Question 1:** Dr. Lander, nearly half of federal research dollars over the last 20 years went to
just six states, and more than one third went to just two states, California and Maryland. U.S.
world leadership in science and technology is dependent on tapping into the potential of all
Americans as we build the workforce of the future.

- What steps should we take to better spread science and technology research and
  expertise across the entire nation?

**Answer:** If confirmed, I'm committed to working with Congress, Federal science agencies,
and my White House colleagues to make sure that all Americans have the opportunities to do
science and technology research and benefit from the results of research.

I believe we can learn from and build on existing programs such as the Established Program
to Stimulate Competitive Research (EPSCoR), the Institutional Development Award (IDeA)
program at the National Institutes of Health (NIH), US Department of Agriculture (USDA)
programs supporting research across the country, Federal STEM-education programs, and other
capacity-building programs to build research infrastructure and capacity in all states and
jurisdictions throughout the United States.
Submitted by Ranking Member, Senator Roger Wicker

Question 2: According to FBI Director Christopher Wray, “the greatest long-term threat to our nation’s information and intellectual property, and to our economic vitality, is the counterintelligence and economic espionage threat from China.”

- What steps can universities and industry take to protect our valuable research from foreign espionage?

Answer: I understand the importance of protecting against foreign espionage, including espionage that targets non-public information and intellectual property. Government, academia, and industry must work together to strengthen and protect our innovation enterprise. This includes increased understanding and awareness of risks, identification of technological vulnerabilities, cyber security measures and training, and openness and transparency with respect to research and development collaborations.

If confirmed, I look forward to working with academic research institutions, industry, and with Congress to identify and implement appropriate measures to safeguard prepublication research and intellectual property, and build our competitiveness in science and technology.
Submitted by Ranking Member, Senator Roger Wicker

**Question 3:** Dr. Lander, although basic research in universities and government agencies is important, more than 70% of R&D in our nation is funded and conducted by industry.

- *How can our federal research agencies work to ensure industry is at the table in technology development so we can cross the so-called “valley of death” between conducting research and actually developing commercially viable products?*

**Answer:** I understand the importance of ensuring that Federal research agencies are involved in technology development to address the “valley of death” that exists between research and developing commercially viable products.

Public-private partnerships can be a valuable tool for addressing the “valley of death” challenge. For example, on April 27, the White House announced that the National Science Foundation (NSF), in partnership with the Department of Defense Office of the Undersecretary of Defense for Research and Engineering, the National Institute of Standards and Technology (NIST), and nine leading companies, launched a program to accelerate research on next-generation networking and computing systems. This partnership joins our great federal research institutions with nine leading companies including Apple, Ericsson, Google, IBM, Intel, Microsoft, Nokia, Qualcomm, and VMware. Together, they will partner to tackle society’s future needs for connectivity, maintain U.S. leadership in critical technologies, and upgrade the nation’s digital infrastructure.

If confirmed I commit to supporting the administration’s efforts in this area and to working with you to explore other strategies.
Submitted by Ranking Member, Senator Roger Wicker

**Question 4:** U.S. leadership in R&D is critical. Our near peer competitors like China are investing significant resources in these fields. I was proud to champion the recently enacted Industries of the Future Act, which directs OSTP to develop a plan to continue U.S. leadership in industries of the future.

- What will you do at OSTP to enable U.S. advancements in technology, such as artificial intelligence and quantum science, so that we can maintain a competitive advantage over countries like China?
  - Follow-up: If confirmed, will you commit to swift implementation of the Industries of the Future Act?

**Answer:** I understand the importance of U.S. leadership in research and development in order to enable U.S. advancements in technology so that we can maintain an international competitive advantage.

OSTP, as part of the Biden-Harris Administration, strongly supports increased funding for emerging technologies. Notably, as indicated in the American Jobs Plan, the Administration is calling on Congress to “make an $180 billion investment that will advance U.S. leadership in critical technologies and upgrade America’s research infrastructure. U.S. leadership in new technologies—from artificial intelligence to biotechnology to computing - is critical to both our future economic competitiveness and our national security.”

If confirmed, I commit to working with you to support U.S. leadership in research and development and to implement the Industries of the Future Act.
Submitted by Ranking Member, Senator Roger Wicker

**Question 5:** Dr. Lander, FY 2018 marked the first increase in federal science and engineering obligations to HBCUs since FY 2014. Unfortunately, this remains only a small fraction of the total federal dollars awarded to all U.S. institutions of higher education. HBCUs play a critical role in education and scientific research. As we discussed in our meeting, Jackson State University was a pioneer in researching the environmental and genetic factors associated with heart, kidney and lung diseases among African Americans through the Jackson Heart Study.

- **If confirmed, what will you do to increase the amount of federal R&D spending at HBCUs like those in my home state of Mississippi?**

**Answer:** I understand the important role that HBCUs play in education and scientific research. The National Center for Science and Engineering Statistics (NCSES) of the National Science Foundation recently released an update on *Women, Minorities, and Persons with Disabilities in Science and Engineering*, reporting that 23 percent of African American or Black graduates who earned an S&E doctorate between 2015 and 2019 earned their bachelor’s degree from an HBCU.

As indicated in the American Jobs Plan, the Administration is calling on Congress “to make a $10 billion R&D investment at HBCUs and other MSIs.” The Plan also calls on Congress “to invest $15 billion in creating up to 200 centers of excellence that serve as research incubators at HBCUs and other MSIs to provide graduate fellowships and other opportunities for underserved populations, including through pre-college programs.”

As indicated in the American Families Plan, the Administration is calling on Congress to support a $400 million investment “in teacher preparation programs at HBCUs, TCUs, and MSIs” and a $5 billion investment “to expand existing institutional aid grants to HBCUs, TCUs, and MSIs,” which would include creating or expanding “educational programs in high-demand fields (e.g., STEM, computer sciences, nursing, and allied health).” As further noted in the American Families Plan, “these proposed investments, combined with the $45 billion proposed in the American Jobs Plan targeted to these institutions, will enable America’s HBCUs, TCUs, and MSIs to help advance underrepresented students and make the U.S. more competitive on the global stage.”

If confirmed, I am committed to working with agencies to support the development of policies and programs that deliver resources and benefits equitably to all and with Congress to support greater federal R&D spending at HBCUs.
Submitted by Ranking Member, Senator Roger Wicker

Question 6: Dr. Lander, In February, NASA successfully landed the Perseverance rover on the surface of Mars. Even more remarkably, this was the 9th time NASA has accomplished such a feat. Space science and technology inspires us and has enriched our lives. As director of OSTP, you will have a role in maintaining U.S. progress in this critical area.

- How do you plan to ensure continued focus on space science and exploration? Will you work with the National Space Council to advance this effort?

Answer: I understand the importance of space as a national and international source of inspiration, which reminds us of the boldness of the human spirit through feats like flying the first helicopter on Mars and launching a new space telescope, and scientific and technological knowledge.

If confirmed, I will ensure the United States remains at the vanguard of space science and technology with ground-breaking achievements, like the deployment of the Perseverance rover and the use of American-made rockets to transport Americans safely into space. If confirmed, I look forward to working closely with the National Space Council because much work remains to advance the future of space science and technology. I commit to working with this committee, if confirmed, to advance our national space policy objectives in service to the American people.
Submitted by Ranking Member, Senator Roger Wicker

Question 7: Dr. Lander, last Congress this Committee passed several bipartisan bills focused on at OSTP. This Congress, I continued that work by introducing the Ocean Exploration Act, along with Senators Cantwell, Schatz, Murkowski, and Whitehouse.

- Can you speak to the importance of bipartisan work for our oceans? And what do you see as the role of OSTP in fostering ocean exploration?

Answer: Covering more than 70 percent of the Earth's surface and over 97 percent of its inhabitable volume, the ocean is critical to our nation's health, prosperity, and security. All Americans benefit from the services the ocean provides, such as commerce, food production, energy, tourism and recreation, environmental protection, conservation, and national and homeland security.

I applaud this committee's leadership on ocean issues, and its strong support for ocean observations, stewardship, and ocean exploration, and recognize that the recently codified Ocean Policy Committee (OPC) provides an effective way to coordinate and advance these interests.

If confirmed, I look forward, with my colleague and OPC co-chair Brenda Mallory, Chair of the Council on Environmental Quality, to convening the OPC.

I greatly appreciate this committee's continuing support for the important work of exploring, observing, and predicting ocean processes. These activities are currently undertaken by numerous Federal agencies, the private sector, non-governmental organizations, and academic institutions. Meeting ambitious goals to map, explore, and characterize the ocean requires engaging these partners to facilitate effective partnerships and working with agencies to minimize barriers to external participation.

As co-chair of the OPC and the National Science and Technology Council’s Subcommittee on Ocean Science and Technology, OSTP will play an important role in coordinating and supporting the continued advancement of ocean science and technology, and I commit to working with you to do so.
Submitted by Senator Mike Lee

Question 1: During the hearing you stated that you “have been on record supporting a moratorium on the use of germline genome editing to create designer babies.” A moratorium is only a temporary restriction on this type of research and last year, you coauthored a report on Heritable Human Genome Editing that charts a potential path forward on this research.

- Do you support a permanent ban on germline genetic engineering to create designer babies? If so, why? If not, what parameters do you believe must be put in place before a moratorium should be lifted?

Answer: This is an extremely important issue: genome editing technology is a powerful tool with potential applications to improve human health and very worrying potential consequences. I am against the use of genome editing technology to create "designer babies." I believe that the unintended consequences and ethical issues are not yet adequately understood and that germline editing is not yet safe or effective enough to justify any use in the clinic.

A moratorium on heritable gene editing is an important first step—there are scientific, technical, medical, ethical and social issues that will need to be addressed before a decision can be made about whether to lift, extend, or make permanent a mortarium. The decision is not mine alone to make. I believe these discussions will require broad societal input.

If confirmed, I would welcome the opportunity to hear your thoughts and work with you on this critical issue.
Question 2: The Biden Administration recently lifted restrictions on the use of fetal tissue for medical research. These new rules would allow scientists to use tissue derived from abortions for medical research. Recently, news broke from a series of FOIA requests that showed how the Food and Drug Administration paid an estimated $2,000 per individual baby and sometimes up to $12,000 per box of harvested organs. Some documents have even showed that the FDA bought body parts from babies that were 24 weeks old as well as the skulls of second trimester babies.

- With the Biden Administration’s lifting restrictions on use of fetal tissue, do you support the trafficking of aborted human body parts?
- If confirmed to be OSTP Director, a role that involves the coordination and establishment of research and development goals across federal agencies, will you oppose this type of scientific research being conducted at the FDA or any federal agency?

Answer: I understand the importance of this issue, which raises sensitive ethical and moral concerns.

The administration's policy keeps in place all of the rigorous expectations, regulations, and applicable laws for conducting this type of research that were adopted by previous administrations, including the most recent. In particular, every researcher will still have to clear the very high bar to demonstrate that the research goals cannot be accomplished in any other way and that robust informed-consent procedures are in place.

If confirmed, I would advise the President on the scientific underpinnings — for example, what advances might result from the development of alternative models to the use of human fetal tissue – and I look forward to working with Congress on continuing to ensure ethical and moral issues are fully considered.
Submitted by Senator Mike Lee

**Question 3:** It’s anticipated that the Senate will soon take up the Endless Frontier Act, which places a great deal of responsibility on the OSTP Director and National Science Foundation for implementation of a $100+ billion government R&D effort to counter China’s threat to the U.S. homeland. As I stated during the hearing, I’m concerned that in this conversation that we are only trying to respond to the CCP threat with more government spending.

- *Are there structural changes that we need to make in order to better mobilize the United States to meet the challenges posed by the Chinese government? How about regulatory changes? Tax code changes? Workforce changes?*
- *Will U.S. spending be less effective without making these structural changes?*

**Answer:** I understand the urgent need to counter the competitive threat that China poses. Our strategic response and competition with China will require an all-of-government effort, as President Biden has recognized. To address this critical issue, it is important to carefully consider the full range of challenges that American industry may face in competition with China and the full range of levers that might be applied to maximize American competitiveness, including regulatory, tax, and workforce policies.

If confirmed, I look forward to working with you to explore all the tools we will need to meet the challenge, including which regulatory, tax, and workforce policies may the most effective.
Submitted by Senator Mike Lee

**Question 4:** What is the appropriate role of the federal government for the categories of “basic research”, “applied research”, or “development”? And what should be left to the private sector?

**Answer:** I understand the importance of investments from the federal and private sector to ensure that all the categories of scientific research in the United States research and development ecosystem will thrive. In each category, the federal support should focus primarily on driving critical R&D that would not otherwise be done — at all, at adequate scale, or at adequate speed — by the private sector, owing to insufficient private return on investment.

If confirmed, I commit to working with you to exploring this balance so that all aspects of scientific research can be supported and thrive.
Submitted by Senator Mike Lee

**Question 5:** The OSTP under the Trump Administration was influential in the formation of the UAS Integration Pilot Program (IPP). The IPP is now completed and the FAA is now transitioning into their next program called BEYOND. A big question in drone policy is the scope of federal preemption. A September 2020 GAO report noted that both DOT and DOJ will soon be issuing a joint opinion on the scope of FAA preemption in the context of low altitude drone operations. The FAA has taken the position that they control the airspace from the ground up.

- Do you think the federal government has the ability to regulate the airspace a couple of feet above your lawn? What about inches above the blades of grass? Is this a problematic position to take?
- Do you think full and safe drone integration is possible without shared responsibility between the federal government and state and local governments?

**Answer:** I understand the important role that Unmanned Aerial Systems play now and will play in the future and thus the importance of ensuring that the United States has balanced guidelines and regulations. I recognize it is important to weigh the considerations of individual property rights and federal authority. It is also important to work together at all levels of government to develop the best possible solutions to these complex issues.

If confirmed, I pledge to work with you to address these important matters.
Submitted by Senator Mike Lee

**Question 6:** Access to additional spectrum is critical for future technological innovation. Unfortunately, the federal government sits on a lot of a valuable spectrum bands, particularly mid-band spectrum which is the best suited for 5G wireless networks.

- Do you think federal agencies currently use their spectrum efficiently?
- Should government agencies be immune from oversight of their use of the electromagnetic spectrum?
- I think Congress and Executive Branch agencies need the best available data to identify inefficiencies in both the commercial and government contexts. Will you support my legislation, the Government Spectrum Valuation Act, which would require NTIA to calculate the value or the “opportunity costs” associated with federal spectrum so that we can make more informed decisions?

**Answer:** I understand the tremendous need to use spectrum efficiently. The demand on our spectrum for uses like 5G and other applications is growing exponentially. Because spectrum is a finite resource, we need to continuously evaluate how it is allocated and used and how to devise ways to squeeze all the value out of it for the American people, including for our economy and national security.

If confirmed, I pledge to work with you to address these important balancing considerations.
Submitted by Senator Mike Lee

**Question 7:** Congress is in the midst of a debate about federal legislation related to data privacy.

- What is the role of the federal government when it comes to data privacy?
- Some believe the FTC should be given greater authority to prescribe data privacy rules, including broad APA authority. What are your views on this?

**Answer:** I understand the importance of addressing data privacy issues. We cannot maximize the benefits of technology without ensuring privacy.

If confirmed, I will work with Federal agencies and the Congress to develop effective ways to protect personal data and to build trust among the American people that personal data about them are protected, while also helping America reap the benefits of innovation and the internet economy.
Submitted by Senator Mike Lee

Question 8: Regulatory red tape is likely the single largest barrier to deployment of wired and wireless broadband. It can be especially difficult for small rural providers to invest the time, money, and effort to build a network that is on or crosses federal lands. Because 2/3 of Utah’s land is owned by the federal government, Utah broadband providers more urgently feel the need for federal permitting reform for broadband infrastructure.

- What would you recommend to agencies to help streamline the permitting process so we can lower the cost, as well as more efficiently allow, for companies to deploy broadband on federal land?

Answer: Americans depend on the internet for education, work, healthcare, and commerce. Without broadband, it will be impossible for people to fully participate in the American economy in the 21st Century.

High-speed internet connectivity needs to be readily, affordably, equitably, and reliably available to every American household. However, millions of Americans lack access to broadband service. These unserved and underserved Americans are disproportionately rural Americans, people on Tribal reservations, people of color, Americans who are older, or those with low-incomes, or with disabilities.

If confirmed, I commit to working with you to explore options to lower the costs of deployment and streamline the deployment of broadband so that more Americans can reap the benefits of connectivity.
Submitted by Senator Mike Lee

**Question 9:** What is the role of the federal government in regulation of tech companies and tech censorship generally? How would you approach this issue as you advise the President?

**Answer:** If confirmed, I will approach the issue of advising on technology governance the same way I approach all science and technology policy issues: with curiosity and an open mind; by calling on the best minds throughout the country for their advice; engaging with companies, organizations, Congress, and academia for their insights and experiences; and relying on our best-available scientific and technical research.
Submitted by Senator Mike Lee

**Question 10:** Is the internet a public utility? Should it be regulated as such?

**Answer:** The past year has made it that clear that Americans depend on internet access for education, work, healthcare, and commerce.

If confirmed, I will work with Congress to identify appropriate approaches for internet governance. Whatever legal approach is adopted should support affordable and equitable access for all Americans.
Submitted by Senator Dan Sullivan

**Question 1:** As you know, the Office of Science and Technology has previously played a critical role in spectrum policy, which is obviously crucial for leadership in 5G – especially in our race with China. If confirmed, what role do you see your OSTP taking in spectrum policy, and what more can be done to help the U.S. lead in 5G?

**Answer:** I understand the critical need for U.S. leadership in 5G—both for U.S. economic growth and our national security.

United States policies that create easier access to spectrum will not only spur the domestic economy, but will help us maintain international leadership in this crucial area of modern technological innovation and commerce.

If confirmed, I pledge to work with stakeholders, including civil society, government, and industry to optimize and advance efficient spectrum use and American competitiveness.