United States Senate

May 10, 2022

The Honorable Jeanne Shaheen
Chair
Subcommittee on Commerce, Justice,
Science, and Related Agencies
S-128, The Capitol
Washington, D.C. 20515

The Honorable Jerry Moran
Ranking Member
Subcommittee on Commerce, Justice,
Science, and Related Agencies
S-128, The Capitol
Washington, D.C. 20515

Dear Chairwoman Shaheen and Ranking Member Moran,

We write to respectfully request that the National Science Foundation (NSF) receive an appropriation of at least **$11 billion** in the Fiscal Year (FY) 2023 Commerce, Justice, Science, and Related Agencies Appropriations bill.

The NSF is an independent federal agency created by Congress to promote the progress of science, secure the national defense, and to advance the nation's health, prosperity, and welfare. It is also the only federal research agency that supports fundamental research in these important fields – biology, computer science, economics, engineering, educational research, geosciences, mathematics, and social and behavioral sciences. The continued success of America's innovation enterprise is dependent upon scientific research and educational programs supported by NSF.

On March 16, the Foundation officially launched a new Directorate for Technology, Innovation, and Partnerships (TIP). Last year, the Senate voted in a bipartisan manner to support TIP as part of the United States Innovation and Competition Act, underscoring the urgency of investments in the new Directorate to bolster our nation's competitiveness and national security. Funding for TIP will position NSF to drive innovation in industries and technologies of the future, such as reliable clean energy, quantum science, artificial intelligence, supercomputing, advanced materials and manufacturing, and cybersecurity.

Funding for NSF in FY2023 must account for this growing role of the Foundation in advancing America's global competitiveness. NSF needs additional resources to ensure that the U.S. remains the world leader in research, and to drive the economic innovation that will underlie the global economy of the 21st century. According to the National Science Board's (NSB) 2022 Science and Engineering Indicators, "the annual increase of China's R&D, averaging 10.6% annually from 2010 to 2019, continues to greatly exceed that of the United States, with an annual average of 5.4% from 2010 to 2019.[1] Consequently, the share of global R&D performed by the United States declined from 29% in 2010 to 27% in 2019, whereas the share by China increased from 15% to 22%."[2]

The success of TIP and progress in these new priority areas rely on NSF's core research and education programs that lay the groundwork for discovery and innovation. One out of every four basic research projects at higher learning institutions across the United States is supported by the NSF and the Foundation's merit review process is the international gold-standard. Nonetheless, in

[1] Amy Burke et al., National Science Board, *The State of U.S. Science and Engineering 2022: U.S. and Global Research and Development* (Jan. 18, 2022), https://ncses.nsf.gov/pubs/nsb20221/u-s-and-global-research-and-development.
[2] Id.

Fiscal Year 2020, almost $4 billion worth of proposals were rated very good but were declined due to inadequate resources. NSF plays a crucial role in supporting the education and development of the STEM workforce that has long driven America's success. "The U.S. STEM workforce— comprised of over 36 million people in diverse occupations that require STEM knowledge and expertise—constitutes 23% of the total U.S. workforce," according to the NSB.[3] NSF education programs, including K-12 STEM education, are key to developing our domestic STEM workforce.

To fully capitalize on the wealth of talent in our country, NSF needs additional funding for programs, such as NSF INCLUDES, that develop diverse STEM talent across geographic, gender, racial, and ethnic lines and the Established Program to Stimulate Competitive Research (EPSCoR), a useful tool to expand the geography of innovation. These programs are important levers to ensure that the benefits of investing in American competitiveness are reaped by all Americans.

For these reasons, we encourage you to provide **at least $11 billion** for the National Science Foundation in FY2023. This amount is the minimum level of funding needed to ensure future generations are prepared to propel our nation's continued standing as a global innovation hub and the world economic leader.

Thank you very much.

Very truly yours,

Edward J. Markey
United States Senator

Tim Kaine
United States Senator

Benjamin L. Cardin
United States Senator

Raphael Warnock
United States Senator

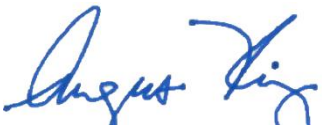
[3] Amy Burke et al., National Science Board, *The State of U.S. Science and Engineering 2022: U.S. and Global STEM Education and Labor Force* (Jan. 18, 2022), https://ncses.nsf.gov/pubs/nsb20221/u-s-and-global-stem-education-and-labor-force.

Sherrod Brown
United States Senator

Christopher S. Murphy
United States Senator

/s/

Jack Reed
United States Senator



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Richard Blumenthal
United States Senator

Tina Smith
United States Senator

Ron Wyden
United States Senator

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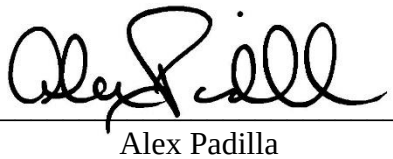
Cory A. Booker
United States Senator

Catherine Cortez Masto
United States Senator

Gary C. Peters
United States Senator

Chris Van Hollen
United States Senator

Dianne Feinstein
United States Senator



Alex Padilla
United States Senator

Tammy Baldwin
United States Senator

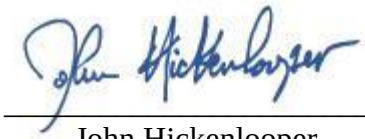
Christopher A. Coons
United States Senator

/s/
Elizabeth Warren
United States Senator

/s/
Robert P. Casey, Jr.
United States Senator

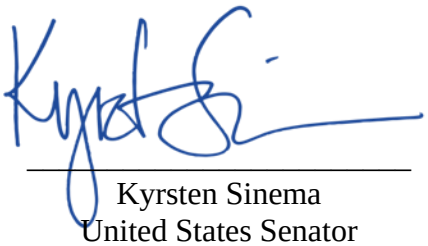
Margaret Wood Hassan
United States Senator

Debbie Stabenow
United States Senator



John Hickenlooper
United States Senator

/s/
Mazie K. Hirono
United States Senator

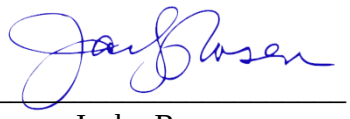


Kyrsten Sinema
United States Senator

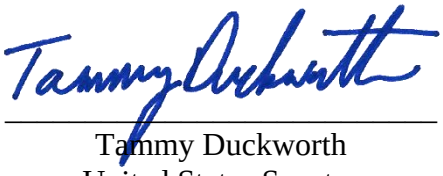
Michael F. Bennet
United States Senator

Jon Ossoff
United States Senator

Sheldon Whitehouse
United States Senator



Jacky Rosen
United States Senator



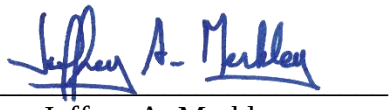
Tammy Duckworth
United States Senator

Robert Menendez
United States Senator

/s/
Richard J. Durbin
United States Senator

Kirsten Gillibrand
United States Senator

Maria Cantwell
United States Senator



Jeffrey A. Merkley
United States Senator

/s/
Amy Klobuchar
United States Senator

Mark R. Warner
United States Senator