

United States Senate

WASHINGTON, DC 20510

November 21, 2022

The Honorable Patrick Leahy
Chairman
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Richard Shelby
Vice Chairman
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Jeanne Shaheen
Chair
Subcommittee on Commerce, Justice,
Science, and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Jerry Moran
Ranking Member
Subcommittee on Commerce, Justice,
Science, and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Chair Leahy, Vice Chair Shelby, Chair Shaheen, and Ranking Member Moran:

The bipartisan *CHIPS and Science Act of 2022* (P.L. 117-167) recognized that both our national defense and economic security depend on advancing critical technologies and workforce skills—from semiconductors to quantum computing to pharmaceuticals. During a period of increased global competition, including with technologically capable nations like China and Russia, the United States must increase investment in the science and technology innovation that has long underpinned our economic and security leadership.

CHIPS and Science marks a significant bipartisan commitment to domestic manufacturing, regional innovation, and strong supply chains. Fully funded, it will foster an inclusive and highly-skilled 21st century workforce, expand scientific research and development across the nation, and unleash American innovation in emerging technologies. To that end, the law authorizes critical programs at the Department of Commerce (DOC), National Science Foundation (NSF), National Institute of Standards and Technology (NIST), and Department of Energy (DOE).

Congress has twice before authorized meaningful growth in our scientific enterprise through the America COMPETES Act of 2007 (P.L. 110-69) and the America COMPETES Reauthorization Act of 2010 (P.L. 111-358). However, the lack of funding for these efforts prohibited agencies from fully delivering on their potential. According to the American Association for the Advancement of Science, key research agencies would have received \$77 billion in additional dollars over the past 15 years under a COMPETES 2007 funding path. In 2013, the Government Accountability Office reported that only one of 28 new COMPETES programs was fully implemented and funded.

Instead of the rapid growth in technological strength Congress envisioned, the United States has suffered insufficient growth in the skilled workforce, increased supply chain vulnerabilities, and rising competition from overseas. As a result, the challenges motivating previous COMPETES Acts have only grown more pressing.

To fulfill the promise of the *CHIPS and Science Act*, Congress must avoid the funding pitfalls that followed previous COMPETES Acts and fully fund the *Chips and Science Act*. The Commerce, Justice, Science, and Related Agencies priorities include:

- **DOC Regional Technology Hubs and Recompete Pilot Program:** The *CHIPS and Science Act* authorized approximately \$1.5 billion in Fiscal Year (FY) 2023 for technology hubs, to stimulate technology innovation and workforce development in up to 20 geographically distributed regions. According to a Brookings Institution report, a third of the nation’s innovation jobs reside in only 16 counties, despite significant untapped talent nationwide. Appropriating \$1.5 billion in FY2023 will directly address this disparity, allowing DOC to award at least 20 grants for developing regional innovation strategies and to begin funding the business, technology, and workforce development activities of four to six geographically diverse regional hubs. Additionally, appropriating \$100 million for Recompete will ensure that smaller, persistently distressed communities can develop science-driven economic strategies.
- **NSF Directorate for Technology, Innovation, and Partnerships:** While the United States leads the world in basic research, growth in patenting activity has not kept pace with Asian competitors. In 2020, the Asia Pacific region received twice as many patent protections as North America in key fields. The *CHIPS and Science Act* authorized \$1.5 billion in FY23 for research and related activities at the NSF Technology, Innovation, and Partnerships (TIP) Directorate, to accelerate the translation of patent-protected research. TIP has already launched the Regional Innovation Engines program—to build research partnerships between universities, industry, workers, and economic development organizations—and attracted over 700 applications across every state and territory. Fully funding TIP in FY23 will allow NSF to establish at least 10 Engines and to help university technology transfer offices increase the patenting and startup activity needed to translate research into useful products.
- **NSF Research and Workforce Development:** The United States will have 9 million high-skilled job vacancies by 2030, jeopardizing our ability to compete globally. NSF has struggled to support promising scientists, with nearly \$4 billion in unfunded highly rated research proposals in 2020. The *CHIPS and Science Act* sought to triple the size of the NSF’s education efforts over 5 years, with an FY23 investment of \$1.95 billion, and to grow NSF FY23 research and related efforts (outside of TIP) to \$7.55 billion. Multi-year funding for TIP STEM activities alone could create more than 40,000 new scholarships, fellowships, and traineeships. Combined with the Act’s commitment to dedicating 15.5% of key NSF accounts in FY 2023 to EPSCoR jurisdictions, fully funding NSF’s research and workforce development programs will empower our community colleges to train skilled labor; increase opportunities at historically Black colleges and universities, tribal colleges and universities, Hispanic-serving institutions, and other minority-serving institutions as defined in section 10002 of the *CHIPS and Science Act of 2022* (Pub. L. 117-167); invest in the promising basic research and researchers; and support economic and scientific growth across America.
- **NIST Manufacturing:** According to McKinsey, American manufacturing has fallen by 25% since 1997. The impact of the pandemic and war in Ukraine have illustrated how this weakened domestic manufacturing base leaves the United States vulnerable to supply chain disruptions, risking domestic jobs, higher consumer prices, and limited options to procure components critical to the national defense. The *CHIPS and Science Act* expands the Manufacturing Extension Partnership (MEP) and its work with small- and medium-sized manufacturers to improve cybersecurity, worker training, and supply chain resiliency. The MEP has a proven track record, creating and retaining 125,746 U.S. manufacturing jobs in 2021. The Act also seeks to strengthen education and workforce development activities at Manufacturing USA research institutes and to create up to ten new institutes in critical manufacturing fields, such as aviation, energy, healthcare, and agriculture. Fully funding MEP at

\$275 million and Manufacturing USA at \$97 million will ensure that America's commitment to science translates into strengthening domestic manufacturing, small businesses, and job growth.

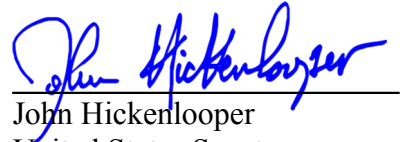
As international competition for technological superiority intensifies, the United States must remain the global gold standard for scientific discovery, technological innovation, and workforce development. The *CHIPS and Science Act* recognizes this need and committed the nation to broad-based and geographically diverse investments in American leadership, including in manufacturing.

Therefore, we urge you fully fund the *CHIPS & Science Act* in the FY2023 Appropriations Bill for Commerce, Justice, Science, and Related Agencies.

Sincerely,



Maria Cantwell
United States Senator



John Hickenlooper
United States Senator



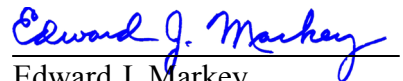
Tammy Baldwin
United States Senator



Sherrod Brown
United States Senator



Christopher A. Coons
United States Senator




Edward J. Markey
United States Senator




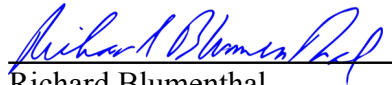
Gary C. Peters
United States Senator

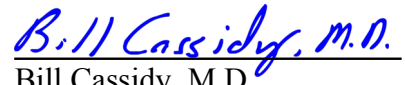



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Raphael Warnock
United States Senator

CC:
The Honorable Charles Schumer, Senate Majority Leader
The Honorable Mitch McConnell, Senate Republican Leader