Policy Alert

Akin Gump
STRAUSS HAUER & FELD LLP

Funding for Scientific Research and Development and Workforce Development Side-by-Side Division B of the America COMPETES Act versus Division B of the U.S. Innovation and Competition Act

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Overview

The America Creating Opportunities for Manufacturing, Pre-Eminence in Technology and Economic Strength (America COMPETES) Act and the U.S. Innovation and Competition Act (USICA) both propose dramatic expansions in funding for federal science agencies, although they each take different approaches in how to prioritize and distribute that funding. Moreover, since Division B of each bill has its roots in different stand-alone bills, some titles overlap while others do not. For example, the Senate bill's provisions overhauling research and development funding are based primarily on the Endless Frontier Act (S1260 as introduced) while the research and development title of Division B of the House bill is based on several bills: (i) the National Science Foundation for the Future Act (HR2225), (ii) the Department of Energy Science for the Future Act (HR3593), (iii) the National Institute of Standards and Technology for the Future Act (HR4609), (iv) the Regional Innovation Act (HR4588) and (v) the Energizing Technology Transfer Act (HR4606). The bills include nearly identical provisions related to bioeconomy research and development and similar programs to support regional innovation capacity. While both the America COMPETES Act and USICA include a title for miscellaneous science research funding, the priorities included in that title are different.

The table immediately below is organized by subject matter so readers can jump to comparable sections of the two bills.

Contact Information

If you have any questions concerning this alert, please contact:

Angela B. Styles
Partner
astyles@akingump.com
Washington, D.C.
+1 202.887.4050

Josh Teitelbaum
Senior Counsel
jteitelbaum@akingump.com
Washington, D.C.
+1 202.887.4081

Francine E. Friedman
Senior Policy Counsel
ffriedman@akingump.com
Washington, D.C.
+1 202.887.4143

Kendall B. Hussey
Senior Policy Advisor
khussey@akingump.com
Washington, D.C.
+1 202.416.5207

Christina Barone
Policy Advisor
cbarone@akingump.com
Washington, D.C.
+1 202.416.5543

Gabriel R. Harrison
Senior Public Policy Specialist
gharrison@akingump.com
Washington, D.C.
+1 202.416.5120

Madison C. Hughes
Public Policy Specialist
mchughes@akingump.com
Washington, D.C.
+1 202.419.4655

	House: America COMPETES Act	Senate: USICA
National Science Foundation Research and Development	✓	✓
Department of Energy Research and Development	✓	✘
National Institute of Standards and Technology Research and Development	✓	✘
Bioeconomy Research and Development	✓	✓
STEM and Broadening Participation in Science	✓	✓
Regional Innovation Capacity	✓	✓
Miscellaneous Science and Technology Provisions	✓	✓
Space Matters	✘	✓

National Science Foundation Research and Development

OVERVIEW

While both the America COMPETES Act and USICA would dramatically increase funding for scientific research and development at the National Science Foundation (NSF), the bills share some priorities for which research areas to emphasize but take significantly different approaches in how to structure the NSF and distribute that funding.

For example, the America COMPETES Act largely leaves intact the existing NSF infrastructure while adding resources, creating new grant programs for specific research priorities, and seeking to improve coordination. USICA, on the other hand, would more significantly overhaul the NSF by establishing a new Directorate of Technology and Innovation to support research and technology development in ten key technology focus areas. The America COMPETES Act does not have any provisions comparable to the new Directorate established by USICA.

Whether these two different approaches can be reconciled will be a critical question of the attempt to conference these two bills.

	HOUSE: America COMPETES Act	SENATE: USICA
Directorate of Technology and Innovation	No comparable provisions.	Adopts the framework of the Endless Frontier Act (S1260 as introduced) first introduced by Sens. Schumer (D-NY) and Young (R-IN). Establishes the Directorate for Technology and Innovation in the NSF (Sec. 2102). The purposes of the new Directorate include: (i) strengthening the leadership of the U.S. in critical technologies; (ii) addressing challenges integral to the geostrategic position of the U.S.; (iii) enhancing the competitiveness of the U.S. by improving education in the key technology focus areas; (iv) accelerating the translation and development of scientific advances in key technology focus areas into processes and products in the U.S.; (v) utilizing the full potential of the U.S. workforce by avoiding undue geographic concentration of research and

	HOUSE: America COMPETES Act	SENATE: USICA
		development and education funding; and (vi) ensuring the work of the Directorate and NSF incorporates a workforce perspective from labor organizations (Sec. 2102). The activities of the Directorate may include: (i) awards to researchers in basic and applied science; (ii) coordination with other federal agencies; (iii) awards for research to achieve specific technology objectives; (iv) reducing barriers to technology transfer; (v) building research capacity at institutions of higher education in the U.S.; and (vi) awards under the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (Sec. 2102). Initial key technology focus areas include: (i) artificial intelligence (AI), machine learning and autonomy; (ii) high performance computing, semiconductors and advanced computer hardware; (iii) quantum information science; (iv) robotics, automation and advanced manufacturing; (v) Natural and anthropogenic disaster prevention or mitigation; (vi) Advanced communications technology and immersive technology; (vii) biotechnology, medical technology, genomics and synthetic biology; (viii) data storage, data management, distributed ledge technologies and cybersecurity; (ix) advanced energy and industrial efficiency technologies like batteries; and (x) advanced materials science (Sec. 2005). Establishes a new University Technology Centers program to award grants to institutes of higher education to conduct basic and applied research in at least one key

	HOUSE: America COMPETES Act	SENATE: USICA
		technology focus area and further the development and commercialization of innovations in the key technology focus areas (Sec. 2104). Establishes a new Innovation Institutes program to further the development, deployment and commercialization of innovation in the key technology focus areas. Each institute shall be comprised of a partnership including at least two or more of an institute of higher education, a for-profit company, a non-profit organization or a federal agency (Sec. 2104). Gives the Directorate the authority to transition any NSF programs from the NSF to the Directorate, including Convergence Accelerator, Industry-University Cooperative Research Centers, National AI Research Institutes, Innovation Corps and any other programs that the Director considers appropriate (Sec. 2105). Directs the Directorate to make awards on a competitive basis for research and technology development within the key technology focus areas with the purpose of demonstrating revolutionary technological advances (Sec. 2107). Directs the Directorate to make awards on a competitive basis to advance the development and commercialization of technologies in the key technology focus areas, to build sustainable technological transfer capacity and to promote regional technology transfer and technological development activities (Sec. 2109). Directs the Directorate to make awards on a competitive

	HOUSE: America COMPETES Act	SENATE: USICA
		basis to build institutional research capacity at eligible institutions (Sec. 2110). The bill authorizes a dramatic increase in funding for the NSF in general and set asides an increasing share of that funding for the new Directorate. In Fiscal Year (FY) 2022, the bill authorizes $10.8 billion for the NSF, including $1.8 billion for the new Directorate. By FY26, the bill authorizes $21.3 billion for the NSF, including $9.3 billion for the new Directorate. In other words, the Directorate's share of NSF funding over the next five years would grow from 16.6 percent to 43 percent. In total, the bill authorizes $81 billion for NSF and $29 billion for the new Directorate (Sec. 2116).
Fundamental Research	Directs the Director of the NSF to carry out a number of actions to invest in critical research-enabling infrastructure (Sec. 10306), such as: • **Broader Impacts**: Requires the Director of the NSF to assess how the criteria for the Broader Impacts Review is applied across the organization and make recommendations for improving its goal—such as increasing economic competitiveness, supporting U.S. national defense and enhancing partnerships between academia and industry, among others (Sec. 10306(b)). • **Research Integrity and Security**: Establishing a Research Security and Policy Office to coordinate all research security policy issues across the NSF; establishing a competitive grant program to support research misconduct and breaches of research	

	HOUSE: America COMPETES Act	SENATE: USICA
	integrity; and prohibiting the participation of NSF researchers in foreign talent recruitment programs sponsored by foreign countries of concern (Sec. 10306(d)). • **Research Reproducibility and Replicability**: Requiring the Director of the NSF to facilitate public access to research products, including data, software and code (Sec. 10306(f)). • **Climate Change Research**: Supporting research to improve the understanding of climate and related human and environmental systems such as: – Climate forcing, feedbacks, responses and thresholds in the earth system. – Climate-related human behaviors and institutions. – Climate-related risk, vulnerability, resilience and adaptive capacity of coupled human-environment systems. – The development and implementation of effective strategies and tools for mitigating and adapting to climate change. – The design, development and assessment of effective information and decision-support systems. – Improved modeling, projections, analyses and assessment of climate and other Earth system changes.	

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	– Atmospheric processes related to solar radiation management strategies and technologies, and examine related economic, geopolitical, societal, environmental and ethical implications. – Strategies for educating and training future climate change researchers and response and mitigation professionals – Strategies for public and community engagement in all the stages of the research and development process. (Sec. 10306(g)). • **Violence Research**: Supporting research to improve understanding of the nature, scope, causes, consequences, prevention and response to all forms of violence (Sec. 10306(h)). • **Social, Behavioral and Economic Sciences**: Communicating opportunities and proposals for social, behavioral and economic science researchers to participate in cross-cutting and interdisciplinary programs and activities (Sec. 10306(i)). • **Measuring Impacts of Federally Funded Research and Development**: Supporting research and development of data, models, indicators and associated analytical tools to improve understanding of the impacts of federally funded research on society, the economy and the workforce, including domestic job creation (Sec. 10306(j)).	

	HOUSE: America COMPETES Act	SENATE: USICA
	• **Food-Energy-Water Research**: Advancing the understanding of food-energy-water system through quantitative and computational modeling, including for relevant cyberinfrastructure (Sec. 10306(k)). • **Biological Field Stations and Marine Laboratories**: Continuing support to enhance, repair and maintain research instrumentation, laboratories, telecommunications and housing at biological field stations and marine laboratories (Sec. 10306(l)). • **Sustainable Chemistry Research and Education**: Establishing a competitive grant program to support sustainable chemistry research and education, including for collaborative research and develop partnerships, integrating sustainable chemistry principles, educational curricula and research training; and incorporating sustain chemistry into existing programs at the NSF (Sec. 10306(m)). • **Risk and Resilience Research**: Advancing knowledge risk assessments and predictability while supporting the creation of tools and technologies, including advancing data analytics and utilization of AI, for increased resilience (Sec. 10306(n)). • **UAV Technologies**: Establishing a research program and related activities for unmanned aerial vehicle (UAV) technologies. (Sec. 10306(o)).	

	HOUSE: America COMPETES Act	SENATE: USICA
	• **Clean Water Research and Technology Acceleration**: Advancing understanding of water availability, quality, dynamics as well as the impact of human activity and a changing climate on urban and rural water and wastewater systems (Sec. 10306(r)). • **Technology and Behavioral Science Research**: Increasing the understanding of social media and other consumer technologies access and use partners as it relates to psychological and behavior issues while exploring its role in rising rates of mental health disorders and substance abuse (Sec. 10306(s)). • **Manufacturing Research Amendment**: Updating the list of technology areas eligible for funding via the advanced manufacturing research program to include “additive” and “continuous manufacturing” (Sec. 10306(t)). • **Critical Minerals Mining Research and Development**: Supporting basic research aimed at accelerating innovation in advance critical minerals mining strategies and technologies for the purpose of making better use of domestic resources and eliminating national reliance on minerals and mineral materials subject to supply disruptions (Sec. 10306(u)). • **Study of AI Research Capacity**: Studying AI research at institutions of higher education (Sec. 10306(v)).	

	HOUSE: America COMPETES Act	SENATE: USICA
	• **Advancing Internet of Things Precision for Agriculture**: Supporting research to improve the use of advanced sensing systems in rural and agricultural areas; highlighting improved productivity in agriculture as a goal for activities funded under the Advanced Technological Education program; and supporting a Government Accountability Office technical assessment for precisions agriculture technologies (Sec. 10306(w)).	
Research Infrastructure	Continues the Facility Operation Transition Pilot Program for an additional five years with the addition of cost-sharing requirement between 10 to 50 percent. This section also directs the Director of the NSF to support—via the Major Research Instrumental Program—proposal requests that include the purchase, installations, operation and maintenance of equipment and instrumentation to reduce consumption of helium. Furthermore, this section requires grant proposals to include estimates on computational resource needs for projects requiring the use of advanced computing. Lastly, this section amends the High-Performance Computing Act and establishes the Computing Enclave Pilot Program to award grants that ensure the security of federally support research data and assist institutions of higher education with compliance with safeguarding sensitive information (Sec. 10307).	No comparable provision.

	HOUSE: America COMPETES Act	SENATE: USICA
Directorate for Science and Engineering Solutions	This section directs the Director of the NSF to appoint a Directorate for Science Engineering Solutions that advances research and development solutions that address societal and national challenges while accelerating research for technology commercialization (Sec. 10308). Furthermore, this section authorizes the appropriation of $40 million for each FY22 through FY26 to support the Directorate's efforts. The section also requires the Director to identify—and regularly update—five focus areas to guide the Directorate's activities (Sec. 10308). In addition, this section establishes a grant program for planning and capacity building at colleges and universities. Grants awarded for this program would (i) last at least three years and are capped at $500,000 to ensure the availability of staff; (ii) revise institution policies, including policies related to intellectual property (IP) and faculty entrepreneurship; (iii) develop new local and regional partnerships; (iv) develop seminar courses and other educational opportunities for students, post-doctoral researchers, faculty and other relevant staff at institutions of higher education to increase awareness and understanding of entrepreneurship, patenting and technology transfer, among other areas; and (v) create/fund competitions to allow entrepreneurial students and faculty to illustrate the commercialization potential of their ideas.	No comparable provision.

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	Lastly, this section creates an award fellowship for post-doctorate trained scientist and engineers to help develop leaders capable of maturing promising ideas and technologies from lab to market and forge connections between academic research and government, industry and finance (Sec. 10308).	

Department of Energy Research and Development

The America COMPETES Act Division B Title I takes a completely different approach to increasing and investment in energy research and development from USICA.

- **Funding existing offices versus creating new ones**: Unlike the America COMPETES Act, which splits new energy science research funding between the U.S. Department of Energy's (DOE) Office of Science and the NSF, the Senate legislation does not have its own title or subtitle for the DOE. Much of its focus is on the proposed Directorate of Technology at the NSF. When USICA does authorize new funding for the DOE's Office of Science, it links that research back to the key technology focus areas that are established for the new Directorate. The America COMPETES Act, instead, is specifically focused on new research and development programs for the DOE's Office of Science and provides targeted funding for specific areas of energy science research under the Office of Science.
- **New construction**: An important difference between the two bills is the permitted uses of the authorized funding with respect to construction. The America COMPETES Act allows funding to be used for construction while USICA explicitly prohibits the use of funding for construction.

	HOUSE: America COMPETES Act	SENATE: USICA
	The America COMPETES Act provides the first ever comprehensive authorization for the DOE's Office of Science, which operates 10 of DOE's national laboratories and manages 29 national scientific user facilities. The bill establishes the mission of the Office of Science and directs the Secretary of Energy to coordinate the office's activities to support advancements in research areas shared between federal agencies and DOE programs (Sec. 10101). The bill expands the responsibilities of the office to include construction, operation and maintenance of facilities to support its mission. The bill provides separate authorizations through FY26 for each of the six main research program areas within the Office of Science, codifies their	USICA largely refrains from making policy changes or giving congressional direction to the DOE and, as a result, has very few overlapping provisions with this title of the America COMPETES Act. USICA authorizes almost $17 billion to the DOE over five years to "carry out research and development and address energy-related supply chain activities within the key technology focus areas." The initial 10 key "key technology focus areas" include AI, high performance computing, quantum information science, robotics, anthropogenic disaster prevention, advanced communications technology, biotechnology, data storage, advanced energy and industrial efficiency technologies, and advanced materials science (Sec. 2005).

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	respective purposes, authorizes new and existing research initiatives, and authorizes construction and repairs at research facilities. These include: • **Basic Energy Sciences**: The bill authorizes $15 billion over five years for this research area, authorizes a new Computational Materials and Chemicals Sciences research program and authorizes construction upgrades to the at various facilities including the Advanced Photon Source, Spillage Neutron Source Proton Power, Advanced Light Source and Linac Coherent Light Source II High Energy, and the Nanoscale Science Research Center Recapitalization Project (Sec. 10102). • **Biological and Environmental Research**: The bill authorizes $4.8 billion over five years for this research area, expands its scope to include climate science, plant and microbial systems biology, biological imaging and analysis, and genomics, and authorizes the establishment of up to six bioenergy research centers to conduct fundamental research in those areas (Sec. 10103). • **Advanced Scientific Computing Research Program**: The bill authorizes $6.5 billion over five years for this research area, authorizes a high-end computing program to support the development of advanced computer architecture and algorithms, and expands funding for the Computational Science Graduate Fellowship (Sec. 10104). • **Fusion Energy Research**: The bill authorizes	The bill further notes that this authorization of appropriations "shall supplement, and not supplant, any other amounts" previously authorized to be appropriated to the DOE. However, the bill also includes a prohibition on using the newly authorized $17 billion in funding for construction (Sec. 2117).

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	\$5.5 billion over five years for this research area, authorizes a fusion materials program and authorizes a High-Performance Computing for Fusion Innovation Center (Sec. 10105). • **High Energy Physics**: The bill authorizes \$8 billion over five years for this research area, directs continued U.S. participation in the Large Hadron Collider and authorizes funding for upgrades to certain specified research facilities (Sec. 10106). • **Nuclear Physics Program**: The bill authorizes \$5 billion over five years for this research area, and authorizes construction of a facility for rare isotope beams and an electron ion collider (Sec. 10107). The bill also authorizes additional research programs under the Office of Science, including research into accelerator science and technologies (Sec. 10108) and isotope development and production (Sec. 10109). The bill authorizes the Director of the Office of Science to employ all available approaches and funding mechanisms to address science laboratory infrastructure needs and establishes a mid-scale instrumentation program to enable the acquisition and development of instruments ranging in cost between \$1 million and \$20 million (Sec. 10110). The bill authorizes the Director of the Office of Science to support programs that collaborate between students, faculty, and the National Laboratories. The section directs the Secretary to	

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	expand opportunities to increase the number of science, technology, engineering and mathematics (STEM) professionals working in the DOE with a focus on recruiting from HBCUs, tribal colleges and universities, MSIs, emerging research institutions and scientific societies. As part of this directive, the Secretary of Energy will submit a report to relevant congressional committees on actions taken to expand Department program diversity (Sec. 10111). The bill authorizes $750 million through FY26 to create a high-intensity laser initiative (Sec. 10112). The bill authorizes a total of $50.2 billion over five years: $8.8 billion for FY22, $9.5 billion for FY23, $10.2 billion for FY24, $10.7 billion for FY25, and $11.1 billion for FY26. This is compared to $7 billion enacted in FY21 (Sec. 10112). The bill prohibits any funds whether through grants, contracts, subcontracts or loans to any entity that is (i) owned or linked to a corporation based in a nonmarket economy country, (ii) placed by the U.S. Trade Representative (USTR) on the priority watch list in its annual Special 301 report, and (iii) subject to monitoring by USTR as a result of a Section 301 investigation (Sec. 10113). In addition, the bill prohibits any funds whether through grants, contracts, subcontracts, or loans to any entity listed in a report by the Director of National Intelligence required under the Uyghur Human Rights Policy Act of 2020 as supporting the construction or	

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	operation of internment camps in Xinjiang or providing mass surveillance technology in Xinjiang (Sec. 10113).	

National Institute of Standards and Technology Research and Development

OVERVIEW

While the Senate-passed USICA explicitly acknowledges the importance of technical standards created and maintained by the National Institute of Standards and Technology (NIST) (see USICA Sec. 2306), the legislation does not include any substantive measures regarding NIST. In contrast, the America COMPETES Act provides a robust package of provisions and programs to strengthen the Institute and support continued NIST research programs. These measures are absent from USICA, except for a provision providing cybersecurity assistance for institutes of higher education (USICA Sec. 2109).

In one of the few clear areas of overlap between the America COMPETES Act and USICA, both pieces of legislation seek to expand and increase funding for the Hollings Manufacturing Extension Partnership (MEP). Measures in both bills focus on supply chain resiliency as a focus of increased funding to support domestic manufacturing and MEP centers (USICA Title IV Regional Innovation Capacity; USICA Secs. 2403, 4124).

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	The bill authorizes a total of $8 billion for NIST over five years, increasing from $1.4 billion for FY to $1.8 billion for FY26, and allocates $200 million each year for maintenance and major repairs at NIST facilities (Sec. 10211). The bill authorizes, codifies or expands NIST measurement standards and technology research programs, including an engineering biology, biomanufacturing and biometrology research and development program (Sec. 10221); a greenhouse gas measurement program (Sec. 10222); neutron research (Sec. 10231); an advanced communications networks program (Sec. 10230); quantum computing networks and encryption research (Sec. 10232); AI testbed programs (Sec. 10233); sustainable chemistry research (Sec. 10234); and premise	The Director of the new Directorate of Technology and Innovation at the NSF, in coordination with the Director of NIST, shall make competitive awards to advance the commercialization of technologies in key focus areas to institutes of higher education or consortium with institutes of higher education as the lead award recipient (Sec. 2109). Authorizes appropriations for the NSF to carry out the programs authorized by that title, including the academic technology transfer program to be run in coordination with NIST. This section authorizes more than $4 billion over five years, including $252 million in FY22, $448 million in FY23, $882 million in FY24, $1.176 billion in FY25, and $1.3 billion in FY26. The bill prohibits the use of funds authorized by Sec. 2116 to be used for construction (Sec. 2116).

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	plumbing standards (Sec. 10235). The bill requires the NIST Director to create a research and development program to inform best practices and standards for the measurement of greenhouse gas emissions. As part of this effort, the Director shall establish a Center of Excellence in Greenhouse Gas Measurement at an institution of higher education or an eligible organization (Sec. 10222). The bill expands the scope of NIST's cybersecurity and privacy research to explicitly include the development of technical standards and practices that increase the security of software supply chains and cloud computing, improve the usability of cybersecurity systems, and improve the protection of personal data. It requires NIST to develop security guidance to help software developers and operators manage cyber risks over the full lifecycle of software products (Secs. 10223-4). Subtitle C requires NIST to reach out to and develop research collaborations with HBCUs and MSIs (Sec. 10241). NIST administers the Hollings MEP, which is a national network of centers that provide support to small and medium-sized manufacturers. The bill significantly increases MEP's authorization of appropriations, including $50 million for the establishment of a National Supply Chain Database to monitor U.S. manufacturing capabilities (Sec.	The bill authorizes $2.4 billion in funding over 5 years for the Hollings MEP, a quadrupling of overall funding for the program. It would also create a new track within the program for workforce development and cybersecurity services and authorize appropriations of $264 million each fiscal year for five years for this new program (Sec. 2403). The bill adopts portions of the Quantum Network Infrastructure and Workforce Development Act, first introduced by Sens. Thune (R-SD) and Hassan (D-NH). The bill directs NIST to carry out research to facilitate the development and standardization of quantum networking and communications technologies and applications, including quantum cryptography. The bill authorizes $10 million for each of FY22 through FY26 (Sec. 2211).

	HOUSE: America COMPETES Act	SENATE: USICA
	10253). The bill establishes a pilot program to expand awards to centers or a consortium of centers to strengthen workforce training, expand advanced technology services, or improve the resilience of domestic supply chains (Sec. 10251).	

Bioeconomy Research and Development

OVERVIEW

The Bioeconomy Research and Development Act of 2021 (S. 1418 / H.R. 4521) is incorporated almost completely in both Title IV of Division B of the America COMPETES Act and Sec. 2217 of USICA. In the Senate, the bill is led by Sens. Markey (D-MA), Gillibrand (D-NY), Rubio (R-FL) and Capito (R-WV), while in the House a companion version was introduced by Rep. Eddie Bernice Johnson (D-TX), Chairwoman of the House Science, Space and Technology Committee.

In both the House-passed and Senate-passed bills, the Bioeconomy Research and Development Act would:

- Establish a National Engineering Biology Research and Development Initiative through the Office of Science and Technology Policy (OSTP) to advance technological innovation in engineering biology and biomanufacturing research through grants, joint funding and interdisciplinary research centers.
- The Initiative would also support the bioeconomy workforce, with special outreach directed to traditionally underrepresented and underserved populations. In its activities and collaborations, the Initiative should consider ethical, legal, environmental, safety and security factors, along with other factors deemed appropriate. The National Academies of Sciences, Engineering and Medicine (NASEM) will also review these factors as it relates to engineering biology.
- The President and OSTP will designate an Interagency Committee (co-chaired by OSTP and an agency or department of OSTP's choice) to coordinate Initiative activities. Participating agencies are defined and assigned activities to promote bioeconomy research and development in the federal government. The Interagency Committee is tasked with facilitating interagency coordination, establishing goals and developing a strategic plan for the Initiative. A triennial report is to be presented to Congress that summarizes Initiative funding, investments and implementation progress. The President shall also establish an Initiative Coordination Office to support the Interagency Committee and promote the product(s) of the Initiative across the federal government and in private industry.

There are minor differences between the versions that were ultimately passed in each chamber:

- The America COMPETES Act removes certain responsibilities assigned to the Department of Defense that were included in USICA and does not reassign them to other departments or agencies.
- The America COMPETES Act provides clearer guidance in discussing the Initiative's work to advance research in information sciences, removing barriers to scaling innovations in engineering biology, and accelerating and commercializing biomanufacturing research and development in the private sector.
- The America COMPETES Act also adds language indicating that the Initiative will support the "establishment, curation, and maintenance of curated genomics, epigenomics, and other relevant omics databases, including plant, animal, and microbial databases."

- The America COMPETES Act delineates additional Institute responsibilities to the National Oceanic and Atmospheric Administration, the Department of Agriculture (USDA) and the DOE that are absent from USICA.

STEM and Broadening Participation in Science

OVERVIEW

Both the America COMPETES Act and USICA include varied provisions and robust funding to broaden participation in science, improve and expand STEM education and to combat sexual harassment in science. In several places these provisions overlap, while in others there are no corresponding counterparts.

For example, both bills include similar requirements for the Office of Science and Technology Policy (OSTP) to develop guidance for Federal science agencies on how to provide flexibility in award start time to grantees with caregiving responsibilities. USICA would establish a National Science Corps, but the House bill does not. Conversely, the America COMPETES Act includes a title dedicated to Minority-serving institutions (MSIs) like Historically Black Colleges and Universities (HBCUs), but the USICA does not. Both bills include provisions to combat sexual harassment in science, although the America COMPETES Act also reference gender-based harassment that USICA does not.

	HOUSE: America COMPETES Act	SENATE: USICA
STEM Education	The America COMPETES Act directs the Director of the NSF to conduct multiple activities aimed at increasing STEM education at the early elementary, elementary, secondary and post-secondary levels, such as: • **Advanced Technological Manufacturing Act**: Amending the Scientific and Advanced-Technology Act of 1992 to broaden STEM and advanced-technology references—such advanced manufacturing, agricultural-, biological- and chemical-technologies, energy and environmental technologies, information technologies, micro and nano-technologies, cybersecurity technologies, geospatial technologies and emerging technologies. • **Cyber Workforce Development Research and Development**: Carrying out research via a merit-based and competitive grant program—made eligible to institutions of higher education, nonprofit organizations	The new NSF Directorate is directed to fund undergraduate scholarships, graduate fellowships and post-doctoral awards in the key technology focus areas. In distributing scholarships under this section, the Director must take steps to increase the participation of communities that are underrepresented in STEM, including geographic diversity, MSIs and institutions of higher education focused on Native Hawaiians, Alaska Natives and Indians (Sec. 2106)

	HOUSE: America COMPETES Act	SENATE: USICA
	and a consortia thereof—on the cyber workforce to understand its current state, examine paths to entry and re-entry into the cyber workforce, understand trends, including demographic representation, and evaluate training practices. • **Cybersecurity Workforce Data Initiative**: Establishing a cybersecurity workforce data initiative that assess the feasibility of providing national cyber workforce estimates, evaluates the data needed to strengthen the cyber workforce and both describes and measures the cyber workforce, among other components. • **Federal Cyber Scholarship for Service Program**: Amending the Cybersecurity Enhancement Act of 2014 to reiterate the sense of the congress that federal investments in the Federal Cyber Scholarship for Service Program at the Foundation play a critical role to prepare and sustain a well prepared and talented national workforce. • **Graduate STEM Education**: Amending the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act and implements a competitive grant program—made eligible to institutions of higher education, nonprofit organizations and a consortia thereof—to develop innovative approaches for facilitating career exploration of academic and nonacademic career options and for providing opportunity broadening experiences. • **Innovation in STEM Education and Community Colleges**: Establishing a competitive grant program—made eligible to institutions of higher education, industry	

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	and labor organizations—to advance research on the nature of learning and teaching at community colleges to improve outcomes for students who either enter the workforce upon completion of STEM degrees or credentials or transfer to a four-year college or university. • **NASEM Study**: Partnering with the NASEM to conduct a study to review the research literature and identify research gaps regarding the factors that either foster or hinder successful implementation of evidence-based Pre-K-12 STEM education practices, models, programs and technologies at the local, regional and national level. • **Pre-K-12 STEM Education**: Entering into a contract with the NASEM to review and assess the status and opportunities for early elementary, elementary and secondary STEM education research and make recommendations for research priorities over the next decade. • **Scaling Innovations in Pre-K STEM Education**: Establishing no fewer than three Centers for Transformative Education Research and Translation Centers via the implementation of a competitive grant program to support research and development on STEM-education innovations. • **STEM Workforce Data**: Analyzing the NSF's skilled technical workforce investments in the areas of education, research, infrastructure, data collection and analysis. • **Supporting Pre-K Informal STEM Opportunities**: Amending the STEM Education Act of 2015 to direct the Director of the NSF to provide competitive grants for	

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	research on programming that engages Pre-K-8 students in STEM, such as before-school, after-school, out-of-school or summer activities. • **Undergraduate STEM Education and Workforce Needs**: Establishing a competitive grant program—made eligible to institutions of higher education, nonprofit organizations, or a consortia thereof—support research and development (R&D) activities to encourage greater collaboration and coordination between institutions and higher education to enhance education, foster hands-on learning experiences and improving alignment with workforce needs while also increasing the size, diversity, capability and flexibility of the STEM workforce. (Sec. 10304)	
Broadening Participation	Directs the Director of the NSF to conduct multiple activities to support and expand the next generation of diverse STEM educators and researchers, such as: • **Capacity-Building Program for Developing Universities**: Building capacity at developing universities, including a historically black college or university, tribal college or university, MSIs and institutions with an established capacity-building program focused on traditionally underrepresented populations in STEM. • **Chief Diversity Officer of the NSF**: Establishing a Chief Diversity Officer at the NSF to facilitate the diverse participation in STEM education and research. • **Continuing Support for EPSCoR**: Updating the Established Program to Stimulate Competitive Research (EPSCoR) to increase the capacity of rural communities to	The new NSF Directorate is directed to fund undergraduate scholarships, graduate fellowships and post-doctoral awards in the key technology focus areas. In distributing scholarships under this section, the Director must take steps to increase the participation of communities that are underrepresented in STEM, including geographic diversity, MSIs and institutions of higher education focused on Native Hawaiians, Alaska Natives and American Indians (Sec. 2106).

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	provide STEM education and workforce development programming to students and teachers. • **Diversity in Tech Research**: Supporting basic and applied research that yields a scientific evidence base for improving the design and emergence, development and deployment, and effectiveness of organizations of all kids, including research on diversity, equity and inclusion in the technology sector. • **Fostering STEM Research Diversity and Capacity Program**: Implementing and studying innovative approaches for building research capacity to engage and retain students from a range of institutions and diverse backgrounds in STEM. • **NSF INCLUDES Initiative**: Carrying out a national initiative to facilitate the development of networks and partnerships to broaden participation in STEM studies and careers of groups historically underrepresented in such studies and careers. • **Presidential Awards for Excellence in Mathematics and Science**: Updating the Presidential Awards for Excellence in Mathematics and Science Teaching program to allow for the selection of at least one teacher each from the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands and Guam. • **Robert Noyce Teacher Scholarship Program Update**: Requiring the Director of the NSF to support symposia, forums, conferences and other activities under the Robert Noyce Teacher Scholarship Program to increase the diversity of participants by expanding outreach to MSIs,	

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	institutions of higher education that serve rural communities or veterans, labor organizations and emerging research institutions. • **Tribal Colleges and Universities Program Update**: Expanding the scope of the Tribal Colleges and Universities Program to include support for activities to build graduate programs (Sec. 10305).	
STEM Opportunities	Requires OSTP to develop guidance to federal science agencies regarding establishment of policies to provide no-cost extensions and flexibility in award start time to grantees with caregiving responsibilities (Sec. 10503). Directs every federal science agency to collect record-level data on all applications for merit-reviewed research and development grants to institutions of higher education and/or federal laboratories to be submitted to the NSF who will disaggregate and cross-tabulate it by race, ethnicity, gender and years since completion of doctoral degree (Sec. 10504). Implements policies in line with recommendations outlined a 2016 report titled "Reducing the Impact of Bias in the STEM Workforce" as published by the Office of Science and Technology Policy. Furthermore, this section establishes a two-year pilot orientation activity for program officers and members of standing review committees to educate reviewers on research related to—and to minimize the impact of—implicit bias at each federal science agency (Sec. 10505). Directs the Director of the NSF to carry out surveys to collect data on the gender, race, ethnicity, citizenship status and	Requires OSTP to provide guidance to federal science agencies regarding the establishment of policies to provide no-cost extensions and flexibility in award start time to grantees with caregiving responsibilities (Sec. 2215). Creates a Chief Diversity Officer position for the NSF, to be appointed by the President and confirmed by the Senate, who will be responsibility for diversity and inclusion at the NSF, including ensuring geographic diversity of NSF programs (Sec 2201). Establishes a scholarship program to expand the STEM workforce, including scholarships directly to students or institutions of higher education, to increase participation in STEM from underrepresented communities and encourage innovation in graduate education and postdoc professional development (Sec. 2202).

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	years since completion of degree of STEM faculty at institutions of higher education. This section authorizes $3 million in each FY22 through FY24 to develop and carry out the survey (Sec. 10506). Requires OSTP to develop and disseminate guidance to universities and Federal laboratories on best practices to help identify any cultural or institutional barriers limiting the recruitment, retention and advancement of women and minorities in STEM research careers. Directs NSF to develop policies to requiring institutions to report on steps taken based on OSTP guidance. Authorizes $1 million for each of FY22 through FY26 for NSF to carry out this section (Sec. 10507). Requires the Director of the NSF to award research grants to analyze the record-level data, to study best practices for work-life accommodations, and to study the impact of policies and practices authorized under Subtitle A of Title V of Division B of the Act, to exchange. This section authorizes $5 million in each FY22 through FY26 for these tasks (Sec. 10508). Requires the NSF Director to award competitive grants to institutions of higher education for the development and assessment of reforms designed to increase the recruitment, retention and advancement of underrepresented people in STEM. The section authorizes $8 million for each FY22 through FY26 for these activities (Sec. 10509). Requires NSF to award grants through the Tribal Colleges and Universities Program to increase participation in computer science and computational thinking education	

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	programs. This section authorizes $2 million for each of FY22 through FY26 for this purpose (Sec. 10510).	
Rural STEM Education Research	Expands the outreach efforts of the Manufacturing Extension Partnership to include secondary schools, community colleges and career and technical education schools. Directs the Secretary of Commerce to establish a prize competition to stimulate innovation in technologies to deploy broadband connectivity to rural communities (Sec. 10522). Directs OSTP to establish a working group in coordination with the Rural Broadband Integration Working Group and the National Institute of Food and Agriculture at the USDA—to address national research challenges and opportunities aimed at improving broadband access and adoption (Sec. 10523). Directs NSF and NASEM to conduct a study that evaluates federal investments in rural STEM education, an assessment of research and data needs, and recommendations for improving STEM education in rural communities (Sec. 10524). Directs federal agencies administering an EPSCoR program to consider modifications to EPSCoR award structures to build the STEM education and workforce development capacity of rural communities (Sec. 10526). Establishes a competitive, merit-based grant program—made eligible to institutions of higher education or a consortia thereof—at the NSF for research and development activities to advance innovative approaches to support and sustain high-quality STEM teaching in rural schools. Furthermore,	Adopts pieces of the Rural STEM Education Act, first introduced by Sens Wicker (R-MS), Rosen (D-NV), Cornyn (R-TX) and Hassan (D-NH). USICA would: (i) direct NSF to award competitive grants to higher education institutions to support high-quality STEM teaching in rural schools; (ii) direct NSF to provide grants on a competitive basis to higher education institutions to identify barriers to rural students accessing high-quality STEM education and develop solutions to improve the advancement of rural students in pre-K through grade 12 STEM studies; (iii) direct NSF to award grants to institutes of higher education to conduct research on online STEM education courses for rural communities; (iv) direct NSF and the NASEM to evaluate federal programming for rural STEM education and make recommendations for ways in which it can be improved; and (v) direct the Commerce Department to carry out a prize competition (for a total of no more than $5 million) to stimulate research and development of creative technologies to support the deployment of affordable and reliable broadband connectivity in rural communities (Sec. 2210).

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	the Director of the NSF may also establish a regional pilot program in rural areas to support peer-support, mentoring and hands-on research experiences for rural STEM educators. This section authorizes $8 million for each FY22 through FY26 for these activities. Lastly, the Director is also authorized to appropriate $12 million for each FY22 through FY26 to implement a merit-based, competitive grant program for the research and development of programming to identify barriers faced by rural students when attempting to access STEM educational activities. (Sec. 10527) Establishes a competitive grant program—made eligible to institutions of higher education, nonprofit organizations or a consortia thereof—to conduct research on online STEM education courses for rural communities. (Sec. 10528)	
Minority-serving Institution STEM Achievement	Directs the U.S. Comptroller General to report to federal lawmakers an inventory of competitive funding programs and initiatives carried out by federal science agencies targeted to HBCUs, tribal colleges and universities, and/or MSIs; an assessment of federal science agency outreach efforts to increase the participation and competitiveness of HBCUs, tribal colleges and universities, and/or MSIs; and a list of recommendations to increase the participation and success of HBCUs, tribal colleges and universities, and/or MSIs in competitive funding programs. (Sec. 10532) Establishes a competitive grant program at NSF made eligible to institutions of higher education or nonprofit organizations (i) to conduct activities that build the capacity of HBCUs, tribal colleges and universities, and/or MSIs to produce competitive and advanced graduates; (ii) to build the	There are no comparable provisions in USICA.

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	research capacity and competitiveness of HBCUs, tribal colleges and universities, and/or MSIs to advance the STEM workforce; and (iii) to identify and disseminate effective programs and practices at HBCUs, tribal colleges and universities, and/or MSIs that promote STEM education and workforce preparedness of minority students in STEM. This section authorizes $900 million over five years for this grant program. (Sec. 10533)	
Combating Sexual Harassment in Science	Establishes a competitive grant program for institutions of higher education and nonprofit organizations to expand research efforts to better understand the factors contributing to sexual and gender harassment in the STEM workforce and to examine interventions to reduce the negative consequences of such harassment (Sec. 10543). Creates a working group of representatives from the federal science agencies to develop questions on sexual and gender harassment in STEM to gather data on the prevalence, nature and implications of such harassment at institutions of higher education which will be included in surveys conducted by the National Center for Science and Engineering Statistics (Sec. 10544). Updates the report titled “On Being a Scientist: A Guide to Responsible Conduct in Research” to include new professional standards of conduct, evidence-based practices for fostering an inclusive work environment, methods to identify and address incidents of sexual and gender harassment, and professional standards for mentorship and teaching (Sec. 10546).	Adopts the Combating Sexual Harassment in Science Act of 2021, including: establishing a competitive grant program for institutions of higher education and nonprofit organizations to expand research efforts to better understand the factors contributing to sexual harassment in the STEM workforce and to examine best practices to reduce the incidence and negative consequences of such harassment (Sec. 2521). Charges the NSF with convening a working group composed of representatives from the federal statistical agencies to develop questions on sexual and gender harassment in STEM to gather data on the prevalence, nature and implications of such harassment at institutions of higher education, which will be included in surveys conducted by the National Center for Science and Engineering Statistics. Updates the report titled “On Being a Scientist: A Guide to Responsible Conduct in Research” to include new professional standards of conduct,

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	Requires NASEM to study the influence of sexual and gender harassment in institutions of higher education on STEM career advancement (Sec. 10547). Authorizes the appropriation of $17.5 million to implement policies and provisions established throughout the subtitle (Sec. 10548).	evidence-based practices for fostering an inclusive work environment, methods to identify and address incidents of sexual and gender harassment, and professional standards for mentorship and teaching. Requires OSTP to develop a set of policy guidelines for federal science agencies dedicated to preventing and responding to reports of sexual harassment and to encourage federal science agencies to adopt and implement those policies.

Regional Innovation Capacity

OVERVIEW

Both the America COMPETES Act and USICA include provisions to establish a new regional technology hub program, though there are important differences between the two in the funding authorized, hubs proposed and eligibility criteria proposed. In addition, the America COMPETES Act includes two other programs dedicated to supporting regional innovation capacity, including the Critical Technology and Innovation Analytics Program and the Regional Clean Energy Innovation Program. Neither program is included in USICA.

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Regional Innovation	Establishes a regional technology and innovation hub program—which will use a competitive process to designate no fewer than ten eligible regional and innovative hubs—to be administered by the Department of Commerce. The program must encourage constructive collaboration between federal, state and local government entities, institutions of higher education, the private sector, economic development organizations, labor organizations, nonprofit organizations and community-based organizations to promote inclusive regional innovation initiatives; to support development and implementation of regional innovation strategies; to ensure regional technology and innovation hubs address the intersection of emerging technologies and national/regional challenges; and to conduct research, evaluations, analysis and dissemination of best practices for regional development and competitiveness in technology and innovation. Furthermore, this section establishes a competitive, merit-reviewed grant program for the development of regional innovative strategies. Lastly, this section authorizes a total of $6.9 billion in appropriation through FY26. (Sec. 10641) **Regional Clean Energy Innovation Program**: Amends the Energy Independence and Security Act and creates a	There are some key differences with the America COMPETES Act: • While the America COMPETES Act authorizes nearly $7 billion for the program, USICA authorizes the program at $10 billion. • While the America COMPETES Act authorizes at least 10 regional hubs, USICA authorizes 20. • USICA requires that the regional hubs relate to at least one key focus technology area while there is no such requirement in the America COMPETES Act. • The America COMPETES Act's Critical Technology and Innovation Analytics Program and the Regional Clean Energy Innovation Program are not included in USICA.

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	Regional Clean Energy Innovation Program at the Department of Energy to research, develop, demonstrate and commercialize applications designed to enhance U.S. economic, environmental and energy security as well as accelerate the pace of innovation in diverse and clean energy technologies. Such awards will be capped at $10 million over the course of five years and includes a cost-sharing requirement of 50 percent in years three through five. (Sec. 10642) **Critical Technology and Innovation Analytics Program**: Directs the Department of Commerce to establish a data collection and analysis program of technology and innovation sectors critical to realizing national security, economic and social objectives. This section authorizes $100 million to conduct activities outlined from FY22 through FY26. (Sec. 10643)	

Miscellaneous Science and Technology Provisions

OVERVIEW

Both the America COMPETES Act (Title VI) and USICA (Title V) include titles on miscellaneous science and technology provisions but the sections within each Miscellaneous title are different.

USICA includes the Country of Origin Labeling Online Act, but this requirement is not found in the America COMPETES Act. USICA also includes a supply chain resiliency program in the miscellaneous title of Division B and so it's counterpart from the America COMPETES Act is described here as well even though it is found in Division C Title II Subtitle A.

USICA Title V on Miscellaneous provisions includes many studies and non-science related sections like a study of sister city partnerships (Sec. 2513), a prohibition on the transfer of construction permits to entities subject to undue influence by the Chinese Communist Party (Sec. 2514), a report on innovation to support national security (Sec. 2501), a limitation on nuclear cooperation with China (Sec. 2515), fairness and due process in standards-setting bodies (Sec. 2517), a sense of Congress on forced labor (Sec. 2519), an annual report on foreign research (Sec. 2523) and shark fin sales elimination (Sec. 2518). These provisions are not summarized below.

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Early Career Research	**Early-Career Research Fellowship Program**: Directs the NSF to establish a two-year pilot program to award grants to early-career investigators to carry out an independent research program for up to two years at the qualified institution of their choice (Sec. 10602). **Authorization of Appropriations**: Authorizes $250,000,000 for each of Fiscal Years 2021 and 2022 to the Director of the NSF to carry out the Early-Career Research Fellowship Program (Sec. 10603).	Like the America COMPETES Act, USICA also establishes the Early-Career Research Fellowship Program with the same parameters (Supporting Early-Career Researchers Act). While both bills require the Director of the NSF to submit a report to Congress on the pilot program, USICA requires grantees to submit reports to the Director on how they used any grant funds. USICA does not include a provision authorizing appropriations for the program (Sec. 2212).
National Science and Technology Strategy	**National Science and Technology Strategy**: Directs the Office of Science and Technology Policy, in consultation with the National Science and Technology Council, to develop and submit to Congress a	The National Science and Technology Strategy-related provisions in the America COMPETES Act are not included in USICA.

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	comprehensive national science and technology strategy to meet national research and development objectives over a four-year period. The section also outlines the requirements of the strategic report (Sec. 10611). **Quadrennial Science and Technology Review**: Directs the Office of Science and Technology policy to review the science and technology enterprise of the United States every four years. The section also describes the scope and requirements of the review (Sec. 10612).	
National Clean Energy Technology Transfer Programs	**National Clean Energy Incubator Program**: Establishes and authorizes $15 million for each FY22 through FY26 for the Clean Energy Incubator Program to competitively award grants to clean energy incubators, which are workspaces, labs and facilities to support clean energy startups or established clean energy companies. Grants are limited to $4 million per year for no longer than five years and may be renewed for up to three years upon merit review (Sec. 10623). **Clean Energy Technology University Prize Competition**: Establishes and authorizes $1 million for each FY22 through FY26 for a prize competition for students to develop a business model for furthering the commercial application of an innovative clean technology. The program prioritizing awarding grants to eligible entities that work with students at MSIs (Sec. 10624).	While USICA contains provisions related to improving technology transfer in academia, the bill does not include similar clean energy provisions or clean energy technology transfer programs, such as the National Clean Energy Incubator Program or Clean Energy Technology University Prize Competition included in the America COMPETES Act (Sec. 2109).

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	Clean Energy Technology Transfer Coordination: Authorizes $3 million for each FY22 through FY26 for the Secretary of Energy to support relevant technology transfer programs that advance the commercial application of clean energy technologies nationally (Sec. 10625).	
Supporting Technology Development at the National Laboratories	**Lab Partnering Service Pilot Program**: Authorizes a total of $3.7 million for each of FY22 through FY24 for the Lab Partnering Service Pilot Program, which was established in Section 9002 of Division Z of the Consolidated Appropriations Act of 2021 (P.L. 116-260) (Sec. 10626). **Lab-Embedded Entrepreneurship Program**: Authorizes $25 million for each of FY22 through FY26 for a program to provide entrepreneurial fellows with access to National Laboratory research facilities, expertise and mentorship to benefit the commercial application of research ideas (Sec. 10627). **Small Business Voucher Program**: Amends Section 1003 of the Energy Policy Act of 2005 to establish and authorize $25 million for each FY22 through FY26 for a program for the Secretary of Energy, in consultation with Directors of the National Laboratories, to provide small businesses with vouchers for research, development, demonstration, technology transfer, commercial application or other appropriate activities to be used at National Laboratories (Sec. 10628).	While USICA contains a provision establishing the Foundation for Energy Security and Innovation, which would advance collaboration between the Department of Energy, National Laboratories and other research entities, the America COMPETES Act includes more robust provisions to facilitate technology development at National Laboratories (Sec. 2528).

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	Entrepreneurial Leave Program: Authorizes the Secretary of Energy to delegate to the Directors of the National Laboratories the authority to carry out a program to allow National Laboratory employees to take a leave of absence from their position, with the option to return up to three years later, to advance the commercial application of energy and related technologies (Sec. 10629). **National Laboratory Employee Outside Employment Authority**: Authorizes the Secretary of Energy to delegate to the Directors of the National Laboratories the authority to allow National Laboratory employees to engage in outside employment and activities related to their areas of expertise (Sec. 10630). **Signature Authority**: Authorizes the Secretary of Energy to delegate to the Directors of the National Laboratories the authority to approve any agreements signed with the National Laboratory up to $1 million, if the agreement falls within the scope of the National Laboratory's strategic plan or the most recent budget approved by Congress for National Laboratory activities (Sec. 10631).	
Department of Energy Modernization	**Office of Technology Transitions**: Amends Section 1001(a) of the Energy Policy Act of 2005 to grant the Under Secretary of Science the authority to appoint personnel using Sec. 636 of the Energizing Technology Transfer Act. This section also authorizes $20 million for	USICA does not include comparable provisions related to modernization of the DOE.

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	each of FY22 through FY26 for the Office of Technology Transitions (Sec. 10632). **Management of Demonstration Projects**: Directs the Secretary of Energy to create a program to carry out project management and oversight of demonstration projects that receive or are eligible to receive funding from the DOE in order to ensure a balanced portfolio of investments in clean energy technology demonstration projects (Sec. 10633). **Streamlining Prize Competitions**: Amends Section 1008 of the Energy Policy Act of 2005 to require an annual report describing prize competitions (Sec. 10634). **Cost-Share Waiver Extension**: Extends the Cost-Share Waiver Pilot Program for institutions of higher education or nonprofit institutions, authorized in Section 108(b) of the Department of Energy Research and Innovation Act, by two years (Sec. 10635). **Special Hiring Authority for Scientific, Engineering and Project Management Personnel**: Authorizes the Under Secretary of Science to appoint up to 60 scientific, engineering and professional personnel to assist the Department of Energy with project and research needs for up to three years (Sec. 10636). **Technology Transfer Reports and Evaluation**: Amends Section 9007 of division Z of the Consolidated Appropriations Act of 2021 (P. L. 116-620) to update reporting requirements on the progress and	

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	implementation of technology transfer projects (Sec. 10637).	
Malign Foreign Talent Recruitment Program Prohibition	**Malign Foreign Talent Recruitment Program Prohibition**: Requires that within 18 months of enactment, each federal research agency must establish a policy requiring research and development award recipients to certify that they are not party to a malign foreign talent recruitment program operated by a foreign country of concern (Sec. 10651)	USICA contains provisions specific to award recipients disclosing participation in foreign talent recruitment programs in the field of biomedical research. Whereas the America COMPETES Act provisions on malign foreign talent apply to "each Federal research agency," the similar USICA provision is specific to the Department of Health and Human Services (Sec. 1601).
Microelectronics Research for Energy Innovation	**Microelectronics Research Program**: Establishes a cross-cutting microelectronics research, development and demonstration program at the DOE to increase U.S. competitiveness in the sector. Furthermore, the section directs the Secretary of the DOE to provide financial assistance to eligible entities—such as institutions of higher education, nonprofit research organizations, research agencies, national laboratories, private industry or a consortia thereof—to carry out research projects in a number of research areas. Lastly, the section supports workforce development activities to promote understanding of microelectronics and relate fields. This section authorizes $75 million for FY22 and $100 million for each FY23 through FY26 (Sec. 10663). **Microelectronic Science Research Centers**: Creates up to four Microelectronic Science Research Centers to conduct mission-driven research to address foundational challenges in the design, development, characterization, prototyping, demonstration and fabrication of	USICA does not contain similar provisions related to microelectronics research and innovation, as included in the America COMPETES Act.

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	microelectronics while also facilitating the research for use by private industry. This section directs the Secretary of the DOE to allocate up to $25 million to each Center for each FY22 through FY26 (Sec. 10664). **Miscellaneous Other Requirements**: States that all contractors and/or subcontracts salaried via funding made available in the subtitle shall be paid in accordance with prevailing wage requirements (Sec. 10665).	
Telecommunications Workforce Training Grant Program	Codifies language included in the Improving Minority Participation and Careers in Telecommunications (IMPACT) Act (S996) and establishes a telecommunications workforce training grant program—made eligible to HBCUs, tribal colleges and universities, MSIs or a consortia thereof—at the Department of Labor in coordination with the Department of Commerce and the Department of Education. This section authorizes the appropriation for of $100 million for each FY23 through FY28. This program appears in Division J of the America COMPETES Act related to provisions in the jurisdiction of the Education and Labor Committee but is included here as reference to USICA, which includes the IMPACT Act in Title V of Division B (Sec. 90401).	Also adopts the IMPACT Act (S996) introduced by Sens. Wicker (R-MS), Sinema (D-AZ), Scott (R-SC) and Warnock (D-GA), including the authorization of $100 million for five years.
Country of Origin Labeling Online Act	No comparable provision.	Adopts the Country of Origin Labeling Online Act (S3707 in the 116th Congress), which would require the country-of-origin labeling for a product, as required by existing law, be clearly and

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		conspicuously stated in the website's description of the product and clear disclosure of the country in which the seller of the product is located (and, if applicable, the country in which any parent corporation of such seller is located) in the online product listing.
Supply Chain Resiliency Program	Authorizes $45 billion for the period of FY22 through FY27 to provide grants, loans and loan guarantees that support the resilience, diversity, security and strength of supply chains, including for activities that support the manufacturing or acquisition of critical goods, enhance manufacturing facilities and create surge capacity (Sec. 20204). This program will be administered in the Department of Commerce by the Assistant Secretary of Commerce for the Office of Supply Chain Resilience and Crisis Response (Sec. 20201(c). Of the $45 billion authorized for this program, $31 billion may be used for loans and loan guarantees, $10 billion may be used for grants and $4 billion for loans and loan guarantees. A grant, loan or loan guarantee may be used to develop, diversify, preserve, improve, restore or expand the manufacturing of critical goods, industrial equipment and manufacturing technology in the United States. An extensive set of activities are further listed including but not limited to manufacturing the good or equipment in the United States; commercializing the technology in the United States; designing, constructing, repairing or	Establishes a supply chain resiliency program; however, it does not include any funding for grants, loans or loan guarantees (Sec. 2505). The mission of the USICA supply chain resilience program is far more limited. It is to: help to promote U.S. leadership in critical industries and encourage public-private partnerships regarding supply chains. The activities of the program include: • Map and monitor critical industry supply chains. • Identify high priority supply chain gaps and vulnerabilities. • Identify opportunities to reduce supply chain gaps or vulnerabilities. • Work with allies to promote diversified and resilient supply chains that ensure the supply of critical goods. The bill lists interagency partners for coordination on the program's activities. The bill requires a report to Congress within one year that identifies industries and supplies that are

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	maintaining critical infrastructure in the United States; and the relocation of manufacturing facilities related to the production of a critical good out of a country of concern and into the United States. The bill also details a narrower set of activities that may be supported by a loan or loan guarantee (but not a grant) for use relating to allies and key international partners. These include the relocation of manufacturing facilities related to the production of a critical good out of a country of concern and into an ally or key international partner. Eligible entities for a grant, loan or loan guarantee include: • A domestic manufacturer • A domestic enterprise • A state, county, city or other political subdivision • A tribal government • A manufacturing extension • A Manufacturing USA institute • An institute of higher education acting in partnership with another eligible entity • A nonprofit acting in partnership with another eligible entity • A consortia of eligible entities. An entity may only be eligible for a grant, loan or loan	critical to the United States, describes the manufacturing base and supply chains for critical industries, assesses the resiliency of the manufacturing base and supply chains for certain industries, and makes recommendations to improve resiliency. In addition, it will be administered by the Commerce Secretary "acting through 1 or more bureaus" since USICA does not create a new Assistant Secretary for Supply Chain Resilience and Crisis Response.

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	guarantee if: • The funding is for an eligible activity. • Without the funding the eligible entity would not be able to fund the eligible activity. • The funding is cost effective. • There is reasonable assurance the activity will support supply chain resilience and the national or economic security of the United States • Relocation of a manufacturing facility to the United States is “uneconomical” if relocating to an ally • The activity does not support production of a critical good subject to a U.S. Antidumping (AD) and/or Countervailing Duties (CVD) order. The bill directs the Assistant Secretary to develop criteria for awarding grants, loans, and loan guarantees to ensure the awards advance the purpose of the program. A condition of funding on the awardee if they receive a loan or loan guarantee for the purpose of relocation is that the awardee is prohibited from making capital or labor investments in the manufacturing facility in the country of concern for the duration of the grant, loan or loan guarantee. A grant, loan or loan guarantee may cover up to 80 percent of the expected costs of the eligible activity. Loans or loan guarantees may be made to manufacturing investment companies.	

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	Performance measures, creditworthiness and further limitations are specified on loans and loan guarantees. Key terms are defined in Sec. 20208, including ally or key international partner, country of concern, critical good, critical industry, critical infrastructure, industrial equipment, key technology focus area (note that these are the same as in the Endless Frontier Act) and resilient supply chain.	

Space Matters

OVERVIEW

USICA includes the original language from the Endless Frontier Act, which incorporated the bipartisan NASA Authorization Act of 2019, which passed the Senate unanimously last Congress, and would authorize NASA's activities, including the agency's exploration, science, aeronautics, STEM education and technology missions. It also incorporates the bipartisan SPACE Act, which would provide the authorities necessary for the Department of Commerce to perform certain space situational awareness activities and authorize centers of excellence for space situational awareness. The space title would authorize just over $10 billion for these activities between FY22 and FY26. There are no provisions in the America COMPETES Act related to reauthorization of NASA. As a result, the NASA Authorization and SPACE Act are not detailed in a side-by-side in this document.