

EXPLANATORY MATERIALS FOR THE COMMERCE, JUSTICE,
SCIENCE, AND RELATED AGENCIES APPROPRIATIONS
BILL, 2024—H.R. 5893

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

The Committee recommends \$1,476,948,000 for the National Institute of Standards and Technology (NIST), which is \$150,337,000 below fiscal year 2023 and \$155,020,000 below the request.

SCIENTIFIC AND TECHNICAL RESEARCH AND SERVICES

(INCLUDING TRANSFER OF FUNDS)

The Committee recommends \$1,019,948,000 for Scientific and Technical Research and Services (STRS), which is \$66,948,000 above fiscal year 2023 and \$25,000,000 above the request.

Artificial Intelligence Risk Management Framework.—The Committee commends NIST for the completion of the Artificial Intelligence (AI) Risk Management Framework and encourages NIST to continue building upon its work assessing the trustworthiness of AI systems.

Forensic sciences.—The recommendation includes \$22,000,000 for forensic science research, including no less than \$3,500,000 to support the Organization of Scientific Area Committees, no less than \$1,500,000 for a competitive Standards Development Organization grant, and no less than \$1,200,000 to support technical merit evaluations.

Quantum information science.—The Committee encourages NIST to undertake the activities authorized by Public Law 115–368 and to concentrate on the identification and development of practical quantum and quantum-hybrid applications that focus on public sector use-cases to ensure the government is able to benefit from technology as it emerges.

Digital twins.—The Committee recognizes the critical role NIST plays in guiding research and standardization in emerging areas, such as digital twins, and acknowledges that digital twins are

emerging as an important tool for intelligent decision-making in advanced manufacturing, healthcare, agriculture, aerospace, and other key U.S. industries. The Committee notes that NIST has found that digital twins can help manufacturers reduce costs and product time to market, optimize manufacturing processes, improve product design and reliability, and bolster cybersecurity resilience. Given the ongoing economic challenges for U.S. manufacturers and the rising cyber threats to the U.S. government and private sector, the Committee encourages NIST to partner with non-governmental organizations and other Federal agencies to create a testbed for development of best practices and standards for the implementation of digital twins throughout U.S. industry and across the Federal Government.

Synthetic biology research and development.—The Committee encourages NIST to sustain and expand its work to develop synthetic biology metrology and standards in alignment with Public Law 117–167. Further, the Committee directs NIST to produce a report, no later than 180 days after the enactment of this Act, detailing its 5-year plan for NIST research innovation in synthetic biology and the budgetary resources needed to execute this plan.

Cybersecurity and privacy standards.—In the following areas within NIST's Cybersecurity and Privacy activities, for purposes that include increasing personnel and contracting resources, the recommendation includes: \$4,000,000 for vulnerability management, \$1,500,000 for cryptography programs, \$5,000,000 for privacy programs, \$5,000,000 for identity and access management, \$3,000,000 for software security, \$2,500,000 for infrastructure with a particular focus on Domain Name System and Border Gateway Protocol security, \$2,000,000 for improving usability of cybersecurity, \$3,000,000 for the National Initiative for Cybersecurity Education with a particular focus on expanding office and personnel capacity to support the workforce requirements authorized in Public Law 116–238, and \$3,000,000 for Internet of Things security.

Advancing research in critical and emerging technologies.—The Committee recognizes NIST's important research role across areas of critical and emerging technologies. NIST's work to evaluate, measure, and develop standards on such technologies is essential to the responsible and effective deployment of these technologies in commercial and national security environments. This work will only grow in importance, particularly as the PRC redoubles its efforts to deploy these technologies for its own strategic advantage. Accordingly, the recommendation includes no less than \$20,000,000 for Advancing Research in Critical and Emerging Technologies.

Cybersecurity education.—The Committee supports the amendments made to Public Law 113–274, known as the Cybersecurity Enhancement Act, as part of Public Law 116–283, particularly with respect to cybersecurity challenge programs, as well as regional alliances and multistakeholder partnerships. Therefore, the Committee encourages NIST to use up to \$5,000,000 of the funds made available for the Cybersecurity and Privacy portfolio for regional alliances and multistakeholder partnerships as detailed in section 303(f) of the Cybersecurity Enhancement Act, as amended. The Committee further encourages NIST to utilize up to \$15,000,000 of funds made available for Cybersecurity and Privacy efforts, for na-

tional cybersecurity challenges as detailed in section 205, as authorized in the Cybersecurity Enhancement Act, as amended.

Cloud computing.—The Committee encourages NIST to recognize growth in the cloud computing industry by publishing descriptions and definitions of the latest cloud characteristics, service models, and deployment models including the growing trend of multi-cloud. The Committee encourages NIST to include in its description of “multi-cloud” the characteristics of software technology that allow for data, application, and program portability. Additionally, the Committee encourages NIST to consider interoperability between multiple cloud computing software vendors and between public, private, and edge cloud environments. Recognizing the rapid growth of multi-cloud adoption and implementation, the Committee urges NIST to establish this definition no later than 180 days after the enactment of this Act.

Weather-related data standards setting.—The Committee continues to be concerned about the impact of weather on the built environment and supports minimizing weather-related risks to Federal and non-Federal investments. The Committee urges NIST to continue its measurement science and standards-setting efforts on this topic and to continue working with the National Oceanic and Atmospheric Administration (NOAA), other Federal agencies, and other stakeholders, as appropriate, to help incorporate up-to-date weather-related data, including data on extreme weather, into codes and standards for buildings and communities.

Research on age verification and age estimation technologies.—The Committee recognizes the importance of protecting children and teenagers online, and the potential value of privacy-protective age verification technology in achieving this goal. The Committee also acknowledges the highly sensitive nature of a child or teenager’s facial biometric information and other personal information. The Committee directs NIST, as part of its ongoing research and testing under sections 10226 and 10223 of Public Law 117–167, to include research and testing of age verification and age estimation technologies, in consultation with the Federal Trade Commission.

Cybersecurity.—Consistent with the recommendations adopted in Public Law 117–328, the Committee encourages NIST to provide updates regarding NIST’s progress in reducing its Cryptographic Module Validation Program (CMVP) backlog. Additionally, if helpful to reducing the backlog, the Committee urges NIST to consider coordinating with or utilizing qualified cryptographic professionals detailed from other parts of the Federal Government. The Committee believes the current backlog threatens the security of Federal information systems at a time of great cyber threat risk to Federal agencies. Additionally, the Committee believes requirements on the CMVP and Federal Information Processing Standards (FIPS) will only continue to increase as efforts to confront emerging quantum computing challenges grow. As such, the Committee further encourages NIST to continue its ongoing efforts to streamline the review process and provide updates about planning for new announcements and future requirements.

Sustainable mass timber construction materials.—The Committee encourages NIST to continue support for emerging industries, including cross-laminated timber.

Artificial intelligence.—The recommendation includes no less than \$15,000,000 for NIST's research and measurement science efforts on AI to position the United States as a global leader in AI innovation. Within the funding provided, the Committee directs NIST to continue the recommendations adopted in Public Law 117–328.

Blockchain research at the National Cybersecurity Center of Excellence.—The Committee encourages the National Cybersecurity Center of Excellence (NCCOE) to research challenges with blockchain and distributed ledger technologies. The Committee is aware of the significance of distributed ledger technology in relation to future economic growth and notes the importance of the U.S. being globally competitive with other countries investing heavily in such technologies. Therefore, the Committee encourages NIST to leverage the resources at the NCCOE to explore the advancement of distributed ledger technologies. Further, the Committee encourages the NCCOE to consider these technologies in relation to the competitive position of the U.S., to research the ability to foster uniform standards that allow for global collaboration in communications and free trade, and to explore any government use cases with the potential for ancillary adaption by the private sector.

Malcolm Baldrige Performance Excellence Program.—The recommendation includes up to \$2,700,000 for the Malcolm Baldrige Performance Excellence Program to provide the necessary funding for NIST to finalize new best practices and criteria framework for the authorized Baldrige Communities of Excellence program. The Committee encourages the program to build additional partnerships and self-assessment tools to assist organizations with cybersecurity risk management.

Addressing wildfire risks.—The recommendation includes \$7,560,000 for Wildfire and the Wildland-Urban Interface-related research. The Committee directs NIST to develop improved Wildland-Urban Interface risk exposure metrics and tools to better assess and mitigate the fire vulnerability of structures to protect at-risk communities.

Cybersecurity of genomic data.—The recommendation includes no less than \$4,500,000 for NIST and the National Cybersecurity Center of Excellence (NCCoE) to continue the cybersecurity of genomic data use case. The Committee directs NIST and NCCoE to continue to partner with non-governmental entities that have existing capability to research and develop state-of-the-art cybersecurity technologies for the unique needs of genomic and biomedical-based systems.

Programs not supported.—The recommendation does not support the NIST Center of Excellence in Climate Change, the NIST Greenhouse Gas Measurements program, or the NIST Diversity, Equity, Inclusion and Accessibility Initiative.

Scientific and Technical Research Projects.—The recommendation includes \$118,511,000 for NIST Scientific and Technical Research Projects. The Committee directs NIST to perform the same level of oversight and due diligence as with any other external partners.

INDUSTRIAL TECHNOLOGY SERVICES

The Committee recommends \$237,000,000 for Industrial Technology Services, which is \$25,000,000 above fiscal year 2023 and \$137,872,000 below the request. Of this amount, \$200,000,000 is for the Hollings Manufacturing Extension Partnership (MEP), and \$37,000,000 is for the Manufacturing USA program.

Manufacturing USA.—The Committee supports the continued operation of the two existing NIST-funded Manufacturing USA Institutes, including the new institute started in fiscal year 2023.

National Manufacturing Extension Partnership supply chain database.—The Committee notes that disruptions caused by the COVID-19 pandemic and recent economic conditions in the United States highlight widespread supply chain vulnerabilities. These challenges reinforce the need for manufacturers and suppliers to communicate more effectively in response to national emergencies and other disasters such as extreme weather. The Committee recognizes that the Manufacturing Extension Partnership (MEP) is the only nationwide system connecting small- and medium-sized manufacturers throughout the U.S. supply chain and that numerous MEP Centers are already utilizing intrastate database systems to enhance communication and create greater efficiencies across their State-based supply chains. The Committee directs NIST to create a permanent, centralized database so that manufacturers have access to a comprehensive MEP database network, as required by Public Law 117–167.

Domestic production of heparin.—The Committee notes the previous recommendation emphasizing the importance of scaling up the production of heparin in House Report 117–395, and highlights the Committee’s continued interest in NIST’s work in this area.

Creating Helpful Incentives to Produce Semiconductors environmental review process.—The Committee is concerned that delays in the due diligence phase of the Creating Helpful Incentives to Produce Semiconductors (CHIPS) incentive funds application process could significantly delay distribution of CHIPS funds. The Committee expects NIST to explore all opportunities to facilitate National Environmental Policy Act (NEPA) reviews to ensure grant funds are expeditiously distributed to qualified projects and semiconductor fabrication plant construction continues without delay. The Committee directs NIST to provide the House and Senate Committees on Appropriations, no later than 60 days after the enactment of this Act, a report detailing a strategy that identifies potentially applicable NEPA Categorical Exclusions and streamlined Environmental Assessment procedures. The Committee strongly encourages the CHIPS Program Office to begin reviewing environmental questionnaires submitted with pre-applications and applications prior to the due diligence phase.

CHIPS awards supporting the semiconductor supply chain.—The Committee emphasizes the importance of ensuring CHIPS incentive awards build out and bolster a secure domestic semiconductor supply chain. The Committee notes that section 103(a)(1)(C) of Public Law 117–167 expanded the recipient eligibility for the CHIPS incentive awards to develop domestic semiconductor manufacturing capability and its corresponding supply chain.

Reporting on CHIPS awards upside sharing and funding milestones.—The Committee reminds NIST of reporting and notification requirements to Congress regarding the CHIPS incentives program, as authorized by Public Law 116–283 and Public Law 117–167. The Committee directs NIST to provide a briefing to the Committee about any upside sharing agreements made between NIST and a recipient of CHIPS funds, as detailed in the Department of Commerce’s Notice of Funding Opportunity (NOFO) entitled, “CHIPS Incentives Program—Commercial Fabrication Facilities.” The Committee further directs NIST to provide regular briefings to the Committee on any amounts received by the agency through upside sharing agreements, which includes a detailed description of how NIST plans to use these funds. Additionally, the Committee directs NIST to provide updates on funds clawed back or withheld from an applicant due to a failure to meet designated milestones highlighted in the NOFO. In providing such briefings, NIST is directed to exclude any business sensitive information.

Implementation of China guardrails for CHIPS awards.—The Committee was pleased to see NIST release a Notice of Proposed Rulemaking on “Preventing the Improper Use of CHIPS Act Funding,” and reminds NIST of the directive included in section 103(b)(5) of Public Law 117–167 requiring covered entities to enter into an agreement with the Department before receiving any funds. The Committee further reminds NIST of the obligation under section 103(b)(5) of Public Law 117–167 requiring NIST to notify Congress no later than 60 days after identifying any violations of the agreements entered into by the Department and CHIPS grant award recipients.

The National Semiconductor Technology Center.—The Committee recognizes the importance of semiconductor research in bolstering the national security interests of the U.S. by supporting and extending U.S. leadership in semiconductor research, design, engineering, and advanced manufacturing to secure a domestic semiconductor supply chain. The Committee appreciates that the National Semiconductor Technology Center (NSTC) can play an important role in bringing together the public and private sector to advance semiconductor research and technologies. The Committee urges NIST to ensure the establishment of the NSTC is transparent and competitive. The Committee also emphasizes the importance of geographic diversity in the selection of NSTC facilities and affiliated technical centers.

CONSTRUCTION OF RESEARCH FACILITIES

The Committee recommends \$220,000,000 for NIST construction, which is \$242,285,000 below fiscal year 2023 and \$42,148,000 below the request. The Committee directs NIST to continue providing updates on the projects funded within this account.

Department of Commerce Allocation of National Institute of Standards and Technology Funds:
CHIPS Act Fiscal Year 2024
(in thousands of dollars)

Account—Project and Activity	Amount
Section 9902	
Creating Helpful Incentives to Produce Semiconductors (CHIPS) for America Fund	\$5,000,000
Administrative Expenses	(100,000)
Office of the Inspector General, Salaries and Expenses	(3,900)
Total, Section 9902	5,000,000
Section 9906	
Industrial Technology Services	1,245,000
National Semiconductor Technology Center	(1,100,000)
Advanced Packaging Manufacturing Program	(95,000)
Manufacturing USA Institute	(50,000)
Scientific and Technology Research & Services	55,000
NIST Metrology Program	(29,000)
Administrative Expenses	(26,000)
Office of Inspector General, Salaries and Expenses	(1,100)
Total, Section 9906	1,300,000

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR 2023
AND BUDGET REQUESTS AND AMOUNTS RECOMMENDED IN THE BILL FOR 2024
(Amounts in thousands)

	FY 2023 Enacted	FY 2024 Request	Bill	Bill vs. Enacted	Bill vs. Request
<hr/>					
National Telecommunications and Information Administration					
Salaries and expenses.....	62,000	109,665	54,000	-8,000	-55,665
Facilities Management & Construction.....	---	7,612	---	---	-7,612
	<hr/>				
Total, National Telecommunications and Information Administration.....	62,000	117,277	54,000	-8,000	-63,277
United States Patent and Trademark Office					
Salaries and expenses, current year fee funding.....	4,253,404	4,195,799	4,195,799	-57,605	---
Offsetting fee collections.....	-4,253,404	-4,195,799	-4,195,799	+57,605	---
	<hr/>				
Total, United States Patent and Trademark Office	---	---	---	---	---
National Institute of Standards and Technology					
Scientific and Technical Research and Services.....	953,000	994,948	1,019,948	+66,948	+25,000
(transfer out).....	(-9,000)	(-9,000)	(-9,000)	---	---
Industrial Technology Services.....	212,000	374,872	237,000	+25,000	-137,872
Manufacturing extension partnerships.....	(175,000)	(277,202)	(200,000)	(+25,000)	(-77,202)
Manufacturing USA.....	(37,000)	(97,670)	(37,000)	---	(-60,670)
Construction of Research Facilities.....	462,285	262,148	220,000	-242,285	-42,148
Working Capital Fund (by transfer).....	(9,000)	(9,000)	(9,000)	---	---
	<hr/>				
Total, National Institute of Standards and Technology.....	1,627,285	1,631,968	1,476,948	-150,337	-155,020