

satellite constellations on Foundation scientific programs by—

(1) making awards on a competitive basis to support study of the potential impacts of satellite constellations on ground-based optical, infrared, and radio astronomy, including through existing programs such as Spectrum and Wireless Innovation enabled by Future Technologies (SWIFT) and the Spectrum Innovation Initiative;

(2) supporting research on potential satellite impacts and benefits and mitigation strategies to be carried out at one or more Foundation supported Federally Funded Research and Development Centers or major multiuser research facilities as defined in section 1862s-2(g) of this title, as appropriate; and

(3) supporting workshops related to the potential impact of satellite constellations on scientific research and how those constellations could be used to improve scientific research.

(Pub. L. 117-167, div. B, title III, §10362, Aug. 9, 2022, 136 Stat. 1568.)

§ 19070. Research on the impact of inflation

(a) In general

The Director may make awards, on a competitive merit-reviewed basis, to institutions of higher education or nonprofit organizations (or consortia of such institutions or organizations) to support research to improve our understanding of the impact of inflation.

(b) Use of funds

Activities funded by an award under this section may include—

(1) measuring the economic impact of inflation on the American people, including an analysis of cost-of-living and wage impacts;

(2) considering the impact of inflation on American international competitiveness;

(3) evaluating the impact of inflation on rural and underserved communities throughout the country;

(4) assessing the ways inflation could impact future American generations; and

(5) evaluating the impact of policymaking on inflation, including the impact of further Government spending.

(c) Coordination to avoid duplication

In making awards under this section, the Director shall, for purposes of avoiding duplication of activities and research, consult, collaborate, and coordinate with the programs and policies of other relevant Federal agencies.

(Pub. L. 117-167, div. B, title III, §10363, Aug. 9, 2022, 136 Stat. 1568.)

§ 19071. Microgravity utilization policy

(a) Sense of Congress

It is the sense of Congress that space technology and the utilization of the microgravity environment for science, engineering, and technology development is critical to long-term competitiveness with near-peer competitors, including China.

(b) Policy

To the extent appropriate during an award period, the Foundation shall facilitate access by

recipients of Foundation awards to the microgravity environment, including in private sector platforms, for the development of science, engineering, and technology relevant to the award.

(c) Report

Not later than 180 days after August 9, 2022, the Director shall provide to the appropriate committees of Congress a report on the Foundation's plan for facilitating awardee access to the microgravity environment.

(Pub. L. 117-167, div. B, title III, §10364, Aug. 9, 2022, 136 Stat. 1569.)

PART F—RESEARCH INFRASTRUCTURE

§ 19081. Facility operation and maintenance

(a) In general

The Director shall continue the Facility Operation Transition pilot program for a total of 5 years.

(b) Cost sharing

The Facility Operation Transition program shall provide funding for 10 to 50 percent of the operations and maintenance costs for major research facilities that are within the first five years of operation, where the share is determined based on—

(1) the operations and maintenance costs of the major research facility; and

(2) the capacity of the managing directorate or division to absorb such costs.

(c) Report

After the fifth year of the pilot program, the Director shall transmit a report to Congress that includes—

(1) an assessment, that includes feedback from the research community, of the effectiveness of the pilot program for—

(A) supporting research directorates and divisions in balancing investments in research grants and funding for the initial operation and maintenance of major facilities;

(B) incentivizing the development of new world-class facilities;

(C) facilitating interagency and international partnerships;

(D) funding core elements of multi-disciplinary facilities; and

(E) supporting facility divestment costs; and

(2) if deemed effective, a plan for permanent implementation of the pilot program.

(Pub. L. 117-167, div. B, title III, §10371, Aug. 9, 2022, 136 Stat. 1570.)

§ 19082. Reviews

The Director shall periodically carry out reviews within each of the directorates and divisions to assess the cost and benefits of extending the operations of research facilities that have exceeded their planned operational lifespan.

(Pub. L. 117-167, div. B, title III, §10372, Aug. 9, 2022, 136 Stat. 1571.)

§ 19083. Helium conservation

(a) Major research instrumentation support

(1) In general

The Director shall support, through the Major Research Instrumentation program,

proposal requests that include the purchase, installation, operation, and maintenance of equipment and instrumentation to reduce consumption of helium.

(2) Cost sharing

The Director may waive the cost-sharing requirement for helium conservation measures for non-Ph.D.-granting institutions of higher education and Ph.D.-granting institutions of higher education that are not ranked among the top 100 institutions receiving Federal research and development funding, as documented by the National Center for Science and Engineering Statistics.

(b) Annual report

No later than 1 year after August 9, 2022, and annually for the subsequent two years, the Director shall submit an annual report to Congress on the use of funding awarded by the Foundation for the purchase and conservation of helium. The report should include—

- (1) the volume and price of helium purchased;
- (2) changes in pricing and availability of helium; and
- (3) any supply disruptions impacting a substantial number of institutions.

(Pub. L. 117–167, div. B, title III, § 10373, Aug. 9, 2022, 136 Stat. 1571.)

§ 19084. Advanced computing

(a) Computing needs

To gather information about the computational needs of Foundation-funded projects, the Director shall require award proposals submitted to the Foundation, as appropriate, to include estimates of computational resource needs for projects that require use of advanced computing. The Director shall encourage and provide access to tools that facilitate the inclusion of these measures, including those identified in the 2016 National Academies report entitled “Future Directions for NSF Advanced Computing Infrastructure to Support U.S. Science and Engineering in 2017–2020”.

(b) Reports

The Director shall document and publish every two years a summary of the amount and types of advanced computing capabilities that are needed to fully meet the Foundation’s project needs as identified under subsection (a).

(c) Roadmap

To set priorities and guide strategic decisions regarding investments in advanced computing capabilities, the Director shall develop, publish, and regularly update a 5-year advanced computing roadmap that—

- (1) describes the advanced computing resources and capabilities that would fully meet anticipated project needs, including through investments in the Mid-Scale Research Infrastructure program and the Major Research Equipment and Facilities Construction account;
- (2) draws on community input, information contained in research proposals, allocation requests, insights from Foundation-funded

cyber-infrastructure operators, and Foundation-wide information gathering regarding community needs;

(3) considers computational needs of planned major facilities;

(4) reflects anticipated technology trends;

(5) informs users and potential partners about future facilities and services;

(6) addresses the needs of groups historically underrepresented in STEM and geographic regions with low availability and high demand for advanced computing resources;

(7) considers how Foundation-supported advanced computing capabilities can be leveraged for activities through the Directorate for Technology, Innovation, and Partnerships; and

(8) provides an update to Congress about the level of funding necessary to fully meet computational resource needs for the research community.

(d) Securing American research from cyber theft

(1) Omitted

(2) Computing enclave pilot program

(A) In general

The Director, in consultation with the Director of the National Institute of Standards and Technology and the Secretary of Energy, and the heads of other relevant Federal departments and agencies, shall establish a pilot program to make awards to ensure the security of federally supported research data and to assist regional institutions of higher education and their researchers in compliance with regulations regarding the safeguarding of sensitive information and other relevant regulations and Federal guidelines.

(B) Structure

In carrying out the pilot program established pursuant to subparagraph (A), the Director shall select, for the development, installation, maintenance, or sustainment of secure computing enclaves, three institutions of higher education that have an established graduate student program and a demonstrated history of working with secure information, consistent with appropriate security protocols.

(C) Regionalization

(i) In general

In selecting universities pursuant to subparagraph (B), the Director shall give preference to institutions of higher education with the capability of serving other regional universities.

(ii) Geographic dispersal

The enclaves should be geographically dispersed to better meet the needs of regional interests.

(D) Program elements

The Director shall work with institutions of higher education selected pursuant to subparagraph (B) to—

- (i) develop an approved design blueprint for compliance with Federal data protection protocols;