



FY 2019 Appropriations Update: Senate Appropriations Committee Approves Commerce, Justice, Science Appropriations Bill

Lewis-Burke Associates LLC – June 18, 2018

On June 14, the Senate Appropriations Committee approved its fiscal year (FY) 2019 Commerce, Justice, Science, and Related Agencies (CJS) appropriations bill by a near-unanimous vote of 30-1. The bill would provide a total of \$62.995 billion in discretionary funding for the National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST), Economic Development Administration (EDA), and Department of Justice (DOJ) among other programs. The total amount provided in the Senate CJS bill is \$3.4 billion above the FY 2018 enacted amount and \$475 million above the House allocation. Similar to the House version, the Senate would prioritize increases for NASA, NSF, and DOJ while reducing funding to NOAA and NIST. The Senate bill would also offer a modest increase to EDA, differing from the House version which would keep the agency flat-funded.

As part of its consideration of the bill, the Senate Appropriations Committee released its report containing more details and direction to the agencies on CJS programs. As with the House version and in keeping with the previous year, the Senate bill would largely ignore many of the spending cuts proposed in the Administration's budget request, including Science, Technology, Engineering, and Mathematics (STEM), minority-serving, and scientific research programs at NSF, NASA, and NOAA. Also, like the House version, the Senate bill would maintain or increase funding for several agencies and programs that the Administration proposed to terminate entirely including EDA and the Hollings Manufacturing Extension Partnership (MEP) program at NIST. Despite these similarities in overall approach, the Senate bill would diverge significantly from its House counterpart in many of the programs and initiatives prioritized for each agency.

As indicated by the vote, support for the bill was broadly bipartisan as Committee members from both parties lauded the increases proposed for scientific research programs as well as the additional funding that would be provided to combat the nationwide opioid crisis. Committee leadership also discouraged the inclusion of unrelated authorization amendments and controversial "poison pill" policy riders, ensuring limited debate and guaranteeing that the 18 amendments included in the manager's package enjoyed bipartisan support. This was a contrast to the House bill, which advanced entirely along party lines after a markup that featured protracted debate over the inclusion of several partisan amendments related to gun control, immigration, and the Russia investigation.

The Senate bill would provide the following funding levels:

- **NSF** would be funded at **\$8.1 billion** in the Senate CJS bill, \$301 million (3.9 percent) above the FY 2018 level and \$597 million above the President's requested level, but \$106 million below the House version. Research and Related Activities, Education and Human Resources, and

Major Research Equipment and Facilities Construction would grow by 3.5 percent, 1.4 percent, and 36.4 percent, respectively.

- **NASA** would be funded at **\$21.3 billion**, an increase of \$587 million (2.8 percent) above FY 2018 enacted and \$1.4 billion above the President's requested level, but \$222 million below the House version. Within this amount, the Science Mission Directorate would receive \$6.4 billion, an increase of \$179 million and 2.9 percent above FY 2018. The bill would reject the Administration's proposed elimination of the Space Technology Mission Directorate and the proposed restructure and reorientation of agency-wide technology activities towards solely human spaceflight endeavors.
- **NOAA** would receive **\$5.5 billion**, \$426 million below FY 2018 but \$324 million above the House mark. Consistent with the House bill, the Senate would reject the budget request's proposed termination of many of NOAA's signature research programs and instead, provide some increases compared to the FY 2018 level. Oceanic and Atmospheric Research would receive \$508 million.
- **NIST** would be funded at **\$1.04 billion**, a reduction of \$161 million compared to the FY 2018 omnibus level, but \$53 million above the House bill. Core research activities would be funded at \$724 million, less than a one percent reduction from FY 2018. The Manufacturing Extension Partnership and the Manufacturing USA programs would be funded at \$140 million and \$15 million, respectively, both level with FY 2018.
- **EDA** would receive **\$305.5 million**, which is about \$4 million more than both the amount provided in the House bill and the FY 2018 enacted level. Notably, the bill would provide a slight increase for the popular Regional Innovation Strategies Program. The President's budget proposed eliminating the agency outright.
- **DOJ** would receive **\$30.7 billion**, a \$403 million increase above the FY 2018 enacted level but \$403 million less than the amount provided in the House bill. Within this amount, the bill would provide \$483 million to help combat heroin, fentanyl, and the illegal distribution and use of opioids. The bill would also prioritize funding for state and local entities to bolster law enforcement programs, address violence against women, combat other violent and gang-related crime, and encourage school safety.

Below are additional details on the House CJS bill and the corresponding Committee report. Specific funding information is available in the charts following the narrative.

National Science Foundation

The Senate CJS bill would provide NSF with \$8.07 billion, which is \$301 million or 3.9 percent above the FY 2018 level and \$597 million more than the President's budget request. The Senate level would be \$106 million below what the House version would provide.

The Senate bill would provide \$6.56 billion for Research & Related Activities (R&RA), 3.5 percent above the FY 2018 level but \$95 million below what the House Appropriations Committee would provide. However, due to an accounting change described below in the Major Research Equipment and Facilities Construction (MREFC) account, the Senate would effectively provide the same amount as the House for R&RA efforts. The Committee notes its support for the *10 Big Ideas for Future Investment* but directs NSF to maintain support for all fundamental science disciplines and core research programs at least at FY 2017 levels. The Committee, "believes that the additional funds provided for fiscal year 2019 are more than adequate to continue basic research and allow NSF to position the United States to continue

as a global science and engineering leader using the 10 Big Ideas framework.” Related to the Big Ideas, the report would additionally:

- Encourage NSF to support existing and future astronomy and physics facilities under the *Windows on the Universe* big idea.
- With respect to the *Navigating the New Arctic* big idea, instruct NSF to, “formulate research programs leveraging expertise from regions accustomed to adapting to changing marine ecosystems. Specifically, NSF should consider the impact of the opening of the two trans-arctic sea routes and the proximity to deep U.S. ports.”
- Support NSF’s funding for plant genomics under the plant genomics research program, especially related to crops of economic importance, given the role this program plays in addressing the research questions underpinning the *Rules of Life* big idea.

The report contains several provisions that echo guidance provided in previous years, specifically:

- Underscoring the importance of the **Established Program to Stimulate Competitive Research (EPSCoR)** and funding the program at \$176.65 million, 8.5 percent over the FY 2017 level and \$6 million above the House proposal.
- Encouraging NSF to fully fund **scientific facilities and instrumentation** and specifically to provide sustained support for programs and scientific facilities in **astronomy**.
- Commending NSF for its continued commitment to **high performance computing** and urging NSF to make timely and significant investments in this space. “The Committee recommends that NSF establish a timely, well-funded budget line in future budget submissions to Congress to support world-class leadership computing for the national open science community.”
- Providing continued support for **cybersecurity** research at the FY 2018 enacted level.
- Recognize NSF’s critical role in technology transfer and innovation through programs such as **Innovation Corps (I-Corps)**. The report would provide no less than the FY 2018 amount for I-Corps and would encourage NSF to, “facilitate greater participation in the program from academic institutions in States that have not previously received awards.”
- Recognizing the importance of NSF’s **Mathematical Sciences Institutes**.
- Highlighting NSF and NOAA collaborations associated with the **Vortex-SE** program focused on devastating tornadoes in the southeastern U.S.; NSF would be directed to include funding plans for Vortex-SE research and instrumentation in future budget requests and ensure collaboration with the **Prediction of and Resilience against Extreme Events (PREEVENTS)** program.
- Noting the Committee’s expectation that NSF will continue supporting research on, “unique mountain temperate woodland ecosystems and ecoregions.”
- Encouraging NSF to continue support for research on the domestic steel industry.
- Providing \$15 million for the **Historically Black Colleges and Universities (HBCU) Excellence in Research Program**, \$5 million more than the Committee provided in FY 2018 appropriations.

While much of the report echoes themes from previous years, there are two additional areas of concern under R&RA:

- NSF would be encouraged to continue transferring **USArray** monitoring stations to the United States Geological Survey (USGS) in seismically active areas with sparse instrumentation.
- With respect to **marine seismic research**, the Committee, “continues to recognize the importance of ensuring that NSF-funded marine research vessels with unique capabilities remain available to the academic community.” Given the NSF plan to end support for the *R/V Marcus Langseth*, the Committee expects a briefing on, “future plans for marine seismic research, including maintaining access to world class research tools.”

Similar to the House bill, the Senate Committee would increase the **Major Research Equipment and Facilities Construction (MREFC)** account far above the President’s budget request and well above the FY 2018 level. Specifically, the Senate would provide \$248 million, \$155 million over the President’s request but \$19 million below what the House Committee proposed. Similar to the House, the Senate would fund three Regional Class Research Vessels (RCRVs), and the Senate Committee specifically provides \$60.5 million to begin construction of the third ship, \$37 million less than the House Committee would provide. The Senate would spend the rest of its increase differently from the House, moving the Antarctic Infrastructure Modernization for Science (AIMS) project to the MREFC account. In practice, this would give the Research and Related Activities account an additional \$95 million for other expenses. When this change is considered, the Senate Committee would provide equal spending power to the House for R&RA, while providing \$114 million less than the House for other MREFC projects. The Senate would provide funding for the Daniel K. Inouye Solar Telescope and the Large Synoptic Survey Telescope (LSST) at the request level, whereas the House Committee would provide \$75 million above the request for LSST. The Committee would encourage the Government Accountability Office (GAO) to continue its annual review of programs funded within MREFC.

Education and Human Resources (EHR) would be supported at \$915 million, \$13 million or 1.4 percent above the House and FY 2018 levels. Within the amount that would be provided, the Committee makes a number of recommendations across all levels of education in science, technology, engineering, and mathematics (STEM) at NSF. Guidance would be similar to previous years, as the Committee would provide:

- \$66 million for the **Advanced Technological Education** program, equal to the FY 2017 level and the FY 2019 budget request. It is unclear whether this is the same as the House proposal, which provided the currently unknown FY 2018 level.
- The FY 2018 level for the **Robert Noyce Scholarship Program, NSF Scholarships in STEM,** and the **Graduate Research Fellowship Program**, rejecting cuts proposed in the budget request.
- \$55 million for the **CyberCorps: Scholarships for Service (SFS)** of which, at least \$7.5 million would support continued activity with “community colleges that have been designated as a Center of Academic Excellence in Information Assurance 2-Year Education [CAE2Y] by the National Security Agency and the Department of Homeland Security;” overall the SFS program would be funded at the request and FY 2017 level.
- Continued support for informal science education; the Committee would provide \$62.5 million to support the **Advancing Informal STEM Learning (AISL)**, level with the President’s budget request and FY 2017 funding.
- Continued support for existing programs to broaden participation in STEM fields supported through the **Division on Human Resource Development**. \$30 million would be provided for the **Hispanic Serving Institutions** program, equal to the FY 2018 level but \$25 million over the House and request proposals. The **Tribal Colleges and Universities Program (TCUP)** would receive \$15 million, \$1 million over the request and FY 2017 level. The Committee recommends continued support for the following programs at FY 2017 and FY 2019 request levels: **Advancement of Women in Academic Science and Engineering Careers (ADVANCE)**; **HBCU Undergraduate Program (HBCU-UP)**; **Alliance for Graduate Education and the Professoriate (AGEP)**; **Louis Stokes Alliances for Minority Participation (LSAMP)**; and **Centers for Research Excellence in Science and Technology (CREST)**.

- \$20 million as requested for the **Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES)** big idea.

Through the **Division of Research on Learning in Formal and Informal Settings**, NSF would be encouraged to fund out-of-school time STEM engagement program activities, with a particular focus on underrepresented populations. In new language this year, the Committee would also encourage, “**training in bioprocessing** within appropriate research areas as part of their educational efforts.”

Within the **Agency Operations and Award Management** account, the Committee notes its continued belief that, “NSF should include criteria that evaluate how a proposal will advance our Nation’s national security and economic interests, as well as promote the progress of science and innovation in the United States.” This language echoes the House Committee report.

Within the Office of the **National Science Board (NSB)** section, the Committee again expresses its concerns about the increasing percentage of R&RA funding being taken up by facility operations. NSB recently released a report on this topic as requested in FY 2017 and FY 2018 appropriations and the Committee notes that it, “stands ready to consider any formal proposals made by the Board and the Foundation during the FY 2020 budget process.”

National Aeronautics and Space Administration

NASA would receive \$21.3 billion, an increase of \$587 million or 2.8 percent above the FY 2018 enacted level and \$1.4 billion or 7.2 percent above the Administration’s FY 2019 request. The bill rejects the Administration’s proposed restructure and reorientation of agency-wide technology activities towards solely human spaceflight endeavors.

The **Science Mission Directorate** would receive \$6.4 billion, an increase of \$178 million and 2.9 percent above FY 2018. As in previous years the Senate mark embodies a different set of priorities for divisions relative to the House and emphasizes funding for Earth science and astrophysics over that of major planetary science missions. Both chambers are concordant in rejecting many of the Administration’s proposed cuts to, or elimination of, programs and major missions.

The **Earth Science Division (ESD)** would receive \$1.93 billion in FY 2019, a \$10 million increase over FY 2018, \$146 million above the request, and \$31 million more than the House mark. Within the overall amount, \$162.4 million would be provided for Landsat-9 to maintain a 2020 launch schedule, and both the Venture Class program and the NASA-ISRO Synthetic Aperture Radar (NISAR) mission would receive the requested levels of \$131.4 million and \$167.5 million, respectively. The Senate would reject the Administration’s proposal to cancel the PACE, CLARREO Pathfinder, OCO-3, and Earth-facing instruments on DSCOVR, and instead provide dedicated funding for each mission in FY 2019. These were also proposed for elimination in FY 2018, but funding was restored in the omnibus.

A provision nearly identical to language in the House FY 2019 report would urge NASA to compete future medium and large missions that address the 2017 decadal recommendations. Under the previous arrangement, only smaller missions were open to competitive opportunities. Similarly, the Committee would request a report on the agency’s plans for competing future instruments beyond Landsat-9 under the NASA-USGS Sustainable Land Imaging program.

The **Astrophysics Division (APD)** would receive \$1.243 billion¹, which is \$392 million or 46.2 percent above the FY 2018 enacted level and \$214.2 million above the House mark. This amount would be \$58 million more than the Administration proposed for the Division in FY 2019, however the Senate would provide \$304.6 for the **James Webb Space Telescope (JWST)** in a separate account outside of APD. When this difference is considered, the Senate would provide an effective increase of \$363 million for the Division. Almost all this increase would be for continued development of WFIRST (\$352 million) for launch by 2025 and with a \$3.2 billion cost cap. The amount for WFIRST is more than double the \$150 million provided by the House.

Within Astrophysics, \$98 million would be allocated to the Hubble Space Telescope, \$15 million above the request. \$15 million would also be set aside to leverage and scale technologies developed for the JWST for future missions that search for exoplanets harboring life. Funding is not specified for the Stratospheric Observatory for Infrared Astronomy (SOFIA) mission, however language in the report would encourage NASA to place SOFIA under Senior Review if needed. This is in direct opposition to the approach taken by the House via controversial language prohibiting a Senior Review of SOFIA until the 2030s in the FY 2018 omnibus and included again in its FY 2019 mark. Lastly, the Committee provided direction for NASA to support the 2020 Astrophysics decadal survey rather than postpone due to the delays associated with JWST and cost growth of WFIRST.

The bill would provide \$2.2 billion for the **Planetary Science Division (PSD)**, \$26.4 million or 1.2 percent below the FY 2018 enacted level, \$33.2 million below the request, and \$557 million below the House mark. Within overall PSD funding, \$348 million would be provided for the Mars 2020 Rover, \$130.2 million for New Frontiers, \$264.7 million for Europa Clipper, and \$50 million for a Mars sample return mission. As in past years, funding is not specified for the Europa Lander mission. The Senate would also provide \$60 million for Near Earth Object Observations, which is \$6 million below FY 2018. Separately, the Double Asteroid Redirection Test (DART) would receive \$97 million with a demonstration no later than June 2021.

The bill would embrace the Administration's prioritization of research and exploration of the lunar environment as part of its **Lunar Discovery and Exploration** program within the Science Mission Directorate. \$218 million would be allocated for these activities and include \$18 million for ongoing operations of the Lunar Reconnaissance Orbiter and an unspecified amount of funding for science and instrument payloads on future commercial lunar landers.

The Senate would provide the **Heliophysics Division (HPD)** with \$720 million in FY 2019, an increase of \$31.5 million or 4.6 percent over both the House mark and the FY 2018 enacted level, and \$29.3 million or 4.2 percent above the request. The proposed increase would represent the third consecutive year of growth for HPD following a prolonged period of stagnating or declining budgets. Consistent with the FY 2018 omnibus, the bill offers funding and explicit support for key priorities outlined in the National Academies of Sciences' decadal survey. These include: \$109.2 million to maintain a two-year cadence of alternating Small Explorer (SMEX) and Medium-class Explorer (MIDEX) missions and accompanying Missions of Opportunity (MOs); \$100 million for Solar Terrestrial Probes to support ongoing missions as well as the continued development of the Interstellar Mapping and Acceleration Probe (IMAP) and associated MOs; and full implementation of the *Diversity, Realize, Integrate, Venture, Educate (DRIVE)* initiative. Of relevance to the academic community, *DRIVE* would support the creation of new

¹ This amount includes the \$45 million that the Senate would designate within the APD budget for SMD-wide Education and Public Outreach (EPO) activities.

Heliophysics Science Centers, which NASA envisions as university-led centers designed to address fundamental questions in solar and space physics through multidisciplinary research. Building upon the omnibus, the Senate would increase funding for space weather research from \$10 million to \$15 million and encourage collaboration with the Department of Defense and NOAA on the translation of NASA's research outcomes into operational improvements to enable more accurate space weather forecasting.

The bill would provide **Education** with \$110 million and propose renaming it the **Science, Technology, Engineering, and Math Opportunities (STEM Opportunities)**, once again rejecting the Administration's proposal to eliminate the office entirely. The Committee would maintain investments in Space Grant (\$44 million), EPSCoR (\$21 million), the Minority University Research and Education Program (MUREP) (\$32 million), and STEM Education and Accountability (\$12 million).

The **Space Technology Mission Directorate (STMD)** would receive \$932.8 million, \$172.8 million or 22.7 percent above the FY 2018 enacted level. Crucially, the Senate bill would maintain STMD's status as an independent directorate within NASA. This constitutes a rejection of both the request and the House bill, each of which would dismantle STMD and relocate some of its constituent programs to the proposed human spaceflight-focused Exploration Research and Technology program. The explanatory statement would instead maintain the current structure, and includes language emphasizing the Committee's support for STMD's focus on early stage technologies that "can serve all NASA mission directorates and are not solely focused on enabling human spaceflight." In addition, the bill would encourage STMD to expand its Regional Economic Development program to all 50 states, and would provide specific funding directives including: \$35 million for additive manufacturing; \$20 million for the student-focused Flight Opportunities program; \$5 million for research on large-scale fabrication and use of nanomaterials, including carbon nanotubes; \$75 million for the development of a nuclear thermal propulsion system, with the goal of a 2024 demonstration mission; and \$180 million for continued work on the RESTORE-L satellite servicing project to support a 2020 demonstration mission to refuel Landsat-7.

The bill would provide the **Aeronautics Research Mission Directorate (ARMD)** with \$725 million in FY 2019, \$40 million or 5.8 percent above the FY 2018 enacted level, \$91.1 million or 14.4 percent above the request, and \$10 million or 1.4 percent above the House version. Reflecting the chamber's FY 2018 mark, the Senate report would provide \$5 million for NASA's university-led research on advanced materials and would encourage NASA to continue pursuing partnerships with research institutions that have "strong capabilities in aviation, aerospace structures, and materials testing and evaluation." The bill would also provide the Administration's requested level of funding for advanced composites research and expresses support for ARMD's research related to the integration of unmanned aerial systems into the National Air System.

National Oceanic and Atmospheric Administration

Overall, the Committee would provide the National Oceanic and Atmospheric Administration (NOAA) with \$5.5 billion, which is a \$426.4 million decrease compared to the FY 2018 enacted level, but \$324.4 million more than the House bill. Like the House version, the Procurement, Acquisition, and Construction (PAC) account would absorb the bulk of the proposed decrease for FY 2019, roughly \$496.9 million less than the FY 2018 enacted level, as several satellites move into less costly operational phases. The **Operations, Research and Facilities (ORF)** account would receive \$3.59 billion, an increase of \$62.8 million compared to the FY 2018 enacted level.

Oceanic and Atmospheric Research (OAR) would receive \$508.3 million, which is relatively flat compared to the FY 2018 enacted level. The Senate Committee would reject all the proposed terminations for NOAA research programs outlined in the President’s FY 2019 budget request. Signature initiatives like **Sea Grant** would instead receive a \$6 million increase compared to FY 2018 level. Within OAR, **Ocean, Coastal and Great Lakes Research** would receive a \$4 million increase and **Climate Research** would receive a \$2 million increase compared to FY 2018. The report directs NOAA to update its “CI21” report on **Cooperative Institutes** for the 21st Century with details on how universities can apply, this language has been included in the past several years to increase transparency of the program. The Committee would provide \$5 million to continue NOAA’s collaboration with the National Science Foundation (NSF) on the Vortex-SE program. The Senate bill would direct \$2 million in funding from the U.S. Weather Research Program to support “remote sensing for snowpack and soil moisture” and ultimately enhance the National Weather Model. Unlike the House bill, which would provide the **Ocean Exploration Research (OER)** program with an \$11.5 million increase, the Senate bill proposes a \$1.5 million cut compared to the FY 2018 enacted level. However, both House and Senate direct OER to award external competitive grants to the academic community.

The Senate bill would provide an overall increase of \$22.7 million for the **National Ocean Service (NOS)**, while the House version proposed a topline cut of \$8.5 million. Unlike the House bill, the Senate would provide flat funding of \$30 million through the National Oceans and Coastal Security Fund (Title XI) to support coastal resilience grants, a fund established in the FY 2018 omnibus. The bill would provide an increase of \$5 million for **Coastal Science and Assessment** competitive grants, directed towards research on harmful algal blooms (HAB). The report directs \$5 million to support collaborations between NOS and academic institutions for innovative coral reef restoration projects. The report also directs \$1 million in funding for the **National Marine Sanctuaries** be used for competitive research grants with a 100 percent non-federal match. The Senate again rejected the proposed termination of the **National Estuarine Research Reserve (NERRS)** from the President’s budget request and would instead provide a \$2.5 million increase compared to the FY 2018 level, with \$2 million dedicated for a new Graduate Research Fellowship program. The Senate Committee emphasizes the need for NOAA to prioritize hydrographic charting of the Arctic and accelerate contracts to support this work immediately. Additionally, the report encourages “high-priority cooperative habitat mapping in the Gulf of Mexico.”

The **National Weather Service (NWS)** would receive relatively flat funding compared to the FY 2018 enacted level. The Senate would provide \$19 million to expand the National Mesonet Program and is directed to add new observations and incorporate state data.

Despite an overall decrease for the **National Environmental Satellite, Data, and Information Service (NESDIS)** account within PAC, there would be additional funding for programs that have become increasingly important like the Space Weather Follow-On activities, which would receive a \$3.5 million increase compared to the FY 2018 enacted level for a total of \$12 million. The Geostationary Operational Environmental Satellite-R series (GOES-R) would receive \$408.4 million, the same as the House mark, which is a decrease of \$110 million compared to the FY 2018 enacted level. The Committee would also provide \$3 million to continue efforts of the Commercial Weather Data Pilot Program, which is a 50% reduction from the FY 2018 level. Additionally, NOAA directs that \$15 million in funding for a “high performance computing facility in collaboration with partners that have existing expertise.”

National Institute of Standards and Technology

In the Senate CJS bill, the National Institute of Standards and Technology (NIST) would receive \$1.03 billion, which is 13.4 percent below the FY 2018 enacted level, but 64.9 percent above the President's budget request. Similar to the House CJS bill, all of the proposed decreases in funding are in the construction of research facilities account.

The Senate bill and accompanying report place significant emphasis on NIST's role in **cybersecurity** and provides funding level with FY 2018 for cybersecurity research, outreach, and industry partnerships. Additionally, the report directs NIST to partner with academic institutions to develop **cybersecure medical technology and devices**, including research and standards to protect patient privacy. The Committee would provide no less than \$2 million for continued development of an **Industrial Internet of Things (IIoT)** in partnership with industry and academia to "couple computer science and engineering, psychology, economics, cryptography, and network research to deliver significant mitigations and options for industrial adoption." Aligning with growing interest from Congress and the Administration, the bill would provide NIST with \$5 million to establish a **quantum science and engineering consortium** between NIST and the public and private sectors.

In addition, the Committee would:

- Provide no less than FY 2018 level for **forensic science research**, plus \$3 million for the Organization of Scientific Area Committees
- Support for NIST's **Disaster Resilient Building program**, encouraging NIST to collaborate with NSF and directs NIST to provide no less than FY 2018 levels for competitive external awards
- Provide no less than FY 2018 levels for competitive external grants to academic institutions in research, development, and education in **Metals-Based Additive Manufacturing**
- Encourage NIST to support **graphene research** and commercialization and potentially "designating an additional Advanced Materials Center dedicated to graphene"

Rejecting the proposal in the President's budget request to eliminate the **Manufacturing Extension Partnership (MEP)** program, the Senate bill would provide the program with \$140 million, the same as in FY 2018 and as the House CJS bill. The Committee would provide \$15 million for coordination activities of **Manufacturing USA**, which aligns with the President's budget request and is \$10 billion above the amount proposed in the House CJS bill. Opposing the House CJS bill, the Senate would maintain the **Urban Dome program**, noting the importance of environmental monitoring and human health.

Economic Development Administration

The Economic Development Administration (EDA) would receive \$305.5 million in FY 2019, \$4 million above the FY 2019 House and FY 2018 enacted level. This allocation runs counter to the President's FY 2019 budget request, which proposed eliminating the agency outright.

The bill would maintain flat funding for virtually all of the agency's key initiatives that support programs to advance public works projects and stimulate innovation-based economic growth, except for a \$4 million increase to the **Regional Innovation Program (RIP)**. RIP is a popular initiative that has provided support for universities and research institutes to develop and scale-up commercialization centers through **i6 Challenge** grants, and to cultivate funding campaigns for promising startups through **Cluster Grants for Seed Capital Funds**. The Senate bill directs EDA to prioritize awards for organizations and

states that have not yet received RIP funding, and to award no less than 40 percent of grants to rural areas. The Committee further encourages EDA to prioritize RIP investments in university-based high-tech incubators, especially in support of university collaborations with federal labs.

As with previous years, the explanatory statement accompanying the bill laid out a number of industry-specific priorities for the agency. Notably, for the second consecutive year, the Committee report directs EDA to provide grants to communities to create and expand **STEM apprenticeship programs**, noting that U.S. employers are struggling to fill jobs in these fields. Other provisions encourage the agency to consider funding outdoor recreation projects as part of a region's Comprehensive Economic Development Strategy, prioritize broadband infrastructure projects in underserved communities as part of the **Economic Adjustment Assistance Program**, support industrial transformation initiatives in struggling communities and regions with forest-based economies, and report on best practices and funding opportunities for communities affected by nuclear power plant closures.

The Committee also expressed concern regarding vacancies in EDA's six regional offices and directs the agency to expedite efforts to fill all vacancies regardless of current or future budget requests.

Department of Justice

The Department of Justice (DOJ) would receive approximately \$30.7 billion for FY 2019, which is a slight increase above the FY 2018 enacted level and a decrease below the House bill, but 9.6 percent above the amount requested in the President's FY 2019 budget request. As with the House bill, the Senate bill would prioritize funding for initiatives to combat human trafficking, the opioid epidemic, and cybercrimes. The Senate bill would also reject many cuts to core programs proposed in the President's request and greatly increase funding for the Juvenile Justice Programs account over the amount provided in the House bill. The bill would maintain flat funding for DOJ's Research, Evaluation, and Statistics account in the Office of Justice Programs (OJP), including the **National Institute of Justice (NIJ)**, DOJ's primary external research program that leverages university partnerships with the goal of strengthening science and enhancing justice.

As with previous years, the Senate bill report lists several priorities for research projects at NIJ and across the agency for innovative studies that address a number of pressing criminal justice concerns. Of note, the report directs NIJ to support research on domestic radicalization, the development of best practices to address school violence, as well as the reconstitution of a former multi-agency effort to identify and develop technologies that can be used by law enforcement to screen and detect the use of drugs. The report also provides support for several research priorities outlined in the House bill, including campus-based sexual assault and cybercrime prevention with a heightened emphasis on juvenile victims. Moreover, the report proposes a new Regional Law Enforcement Technology Initiative, which would provide grants to local law enforcement entities to improve the dissemination of pertinent information that is critical to responding to crimes and suspicious activity in communities. The report suggests that five states comprising the Gulf Coast would be particularly well-situated to serve as a testbed for the initiative.

The report language also calls for the agency to leverage universities to provide training and develop new education models for criminal justice professionals. Suggested programs include transdisciplinary crisis intervention training to equip officers to appropriately interact with mentally ill individuals; legal services for individuals with post-conviction claims of innocence; and the development of undergraduate and graduate programs for computer forensics and digital investigation. In addition, the

Senate Committee once again calls for NIJ to partner with an accredited university to establish a new National Center on Restorative Justice. The Center would establish a degree program or a summer institute aimed at developing the next generation of justice leaders through enhancing individuals' understanding of the justice system and restorative approaches. The Center is also directed to, "support research focusing on how best to provide direct services to address social inequities, such as simultaneous access to substance abuse treatment and higher education."

The bill would provide a 12.5 percent increase for the Community Oriented Policing Services (COPS) Office above the FY 2018 enacted level. The report language issues support for numerous state and local programs managed by the COPS Office to strengthen the relationship between the police and communities they serve, as well as develop innovative law enforcement practices and procedures. This is in stark contrast to the House bill and the President's budget request, which did not provide top-level funding for the office and suggested that several of its initiatives be consolidated with other parts of DOJ. Importantly, the report also urges DOJ to leverage recommendations made by the Task Force on 21st Century Policing, a body convened by the Obama Administration to guide the federal government's role in facilitating comprehensive policing reform.

Finally, the bill would provide \$360 million to implement programs for DOJ enforcement and grant assistance to combat the opioid epidemic under the *Comprehensive Addiction and Recovery Act*, which is \$20 million less than the amount provided in the House bill. This would include support for state, local, and tribal governments to provide training for the administration of addiction prevention, education, and response initiatives.

Senate CJS Appropriations Bill, FY 2019

As reported by the Senate Appropriations Committee on 6/14/2018

National Science Foundation

(In thousands of \$)

	FY 2018 Enacted	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
NSF, total	7,767,360	8,174,890	8,068,670	301,310 (3.9%)	596,670 (8.0%)	-106,200 (1.3%)
Research & Related Activities	6,334,480	6,651,500	6,556,180	221,710 (3.5%)	405,500 (6.6%)	-95,320* (1.4%)
Education & Human Resources	902,000	902,000	915,000	13,000 (1.4%)	41,630 (4.8%)	13,000 (1.4%)
MREFC	182,800	268,000	249,250	66,450 (36.4%)	154,600 (163.3%)	-18,790 (7.0%)
Agency Operations and Award Management	328,510	333,630	328,510	--	-5,120 (1.5%)	-5,120 (1.5%)
NSB	4,370	4,370	4,370	--	50 (1.2%)	--
Office of Inspector General	15,200	15,350	15,350	15 (1.0%)	--	--

*This amount is equal to a Senate-proposed transfer of the AIMS project to the MREFC line, leaving \$95 million additional dollars in R&RA. When the transfer is considered, the House and Senate would provide equal amounts to R&RA efforts, while the Senate would provide \$114 million less for MREFC activities beyond AIMS.

National Aeronautics and Space Administration

(In thousands of \$)

	FY 2018 Enacted	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
NASA, total	20,736,140	21,545,740	21,323,400	587,260 (2.8%)	1,431,400 (7.2%)	-222,340 (1.0%)
Science	6,221,500	6,680,600	6,400,300	178,800 (2.9%)	505,300 (8.6%)	-280,300 (4.2%)
Earth Science	1,921,000	1,900,000	1,931,000	10,000 (0.5%)	146,800 (8.2%)	31,000 (1.6%)
Planetary Science	2,227,900	2,758,500	2,201,500	-26,400 (1.2%)	-33,200 (1.5%)	-557,000 (20.2%)
Astrophysics	850,400	1,029,000	1,243,200	392,800 (46.2%)	57,800 (4.9%)	214,200 (20.8%)
James Webb Space Telescope	533,700	304,600	304,600	-229,100 (42.9%)	--	--
Heliophysics	688,500	688,500	720,000	31,500 (4.6%)	29,300 (4.2%)	31,500 (4.6%)
Education and Public Outreach (EPO)	44,000	44,000	45,000	1,000 (2.3%)	400 (0.9%)	1,000 (2.3%)
Aeronautics	685,000	715,000	725,000	40,000 (5.8%)	91,100 (14.4%)	10,000 (1.4%)
Space Technology*	760,000	0	932,800	172,800 (22.7%)	932,800 (N/A)	932,800 (N/A)
Deep Space Exploration Systems	4,790,000	5,083,900	5,338,700	548,700 (11.5%)	779,900 (17.1%)	254,800 (5.0%)
Exploration Systems Development	4,395,000	4,045,000	4,295,000	-100,000 (2.3%)	625,200 (17.0%)	250,000 (6.2%)
Exploration Research and Development	395,000	1,038,900	1,043,700	648,700 (164.2%)	1,043,700 (N/A)	4,800 (0.5%)
Exploration Research and Technology	N/A	900,000	N/A	N/A	N/A	N/A
LEO and Spaceflight Operations	4,751,500	4,624,700	4,639,100	-112,400 (2.4%)	14,500 (0.3%)	14,400 (0.3%)
STEM Opportunities†	100,000	90,000	110,000	10,000 (10.0%)	110,000 (N/A)	20,000 (22.2%)
Aerospace Research & Career Dev.	58,000	58,000	65,000	7,000 (12.1%)	65,000 (N/A)	7,000 (12.1%)
Space Grant	40,000	40,000	44,000	4,000 (10.0%)	44,000 (N/A)	4,000 (10.0%)
EPSCoR	18,000	18,000	21,000	3,000 (16.7%)	21,000 (N/A)	3,000 (16.7%)
Minority University Research Education Program (MUREP)	32,000	32,000	33,000	1,000 (3.1%)	33,000 (N/A)	1,000 (3.1%)
STEM Education & Accountability	10,000	0	12,000	2,000 (20.0%)	12,000 (N/A)	12,000 (N/A)
Safety, Security, & Mission Services	2,826,900	2,850,000	2,750,000	-76,900 (2.7%)	300 (0.0%)	-100,000 (3.5%)
Construction and Environmental	562,240	562,240	388,200	-174,040 (31.0%)	--	-174,040 (31.0%)

Compliance and Restoration						
Office of Inspector General	39,000	39,300	39,300	300 (0.8%)	--	--

*The President’s fiscal year (FY) budget request and the FY 2019 House Commerce, Justice, Science appropriations bill proposed that the Space Technology Mission Directorate (STMD) be dissolved, and the funds be moved into an “Exploration Research and Technology” account. The FY 2019 Senate Commerce, Justice, Science appropriations bill would maintain STMD.

†The FY 2019 Senate Commerce, Justice, Science appropriations bill proposes that the NASA Education program be renamed “Science, Technology, Engineering, and Mathematics (STEM) Opportunities.”

National Oceanic and Atmospheric Administration

(In thousands of \$)

	FY 2018 Enacted	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
NOAA, total	5,909,364	5,158,616	5,482,954	-426,410 (7.2%)	920,243 (20.2%)	324,338 (6.3%)
Operations, Research and Facilities (ORF)	3,536,331	3,473,654	3,599,126	62,795 (1.8%)	661,373 (22.5%)	125,472 (3.6%)
Oceanic and Atmospheric Research (OAR)	507,519	462,339	508,256	737 (0.1%)	212,605 (71.9%)	45,917 (9.9%)
<i>Climate Research</i>	158,000	98,643	160,000	2,000 (1.3%)	61,357 (62.2%)	61,357 (62.2%)
<i>Weather and Air Chemistry Research</i>	131,516	131,516	115,622	-15,894 (12.1%)	23,892 (26.0%)	-15,894 (12.1%)
<i>Ocean, Coastal and Great Lakes Research</i>	205,823	220,000	220,500	14,677 (7.1%)	127,356 (136.7%)	500 (0.2%)
<i>National Sea Grant Program</i>	65,000	68,500	71,000	6,000 (9.2%)	71,000 (N/A)	2,500 (3.6%)
<i>Ocean Exploration & Research</i>	36,500	48,000	35,000	-1,500 (4.1%)	15,439 (78.9%)	-13,000 (27.1%)
National Weather Service (NWS)	1,014,119	1,015,000	1,019,219	5,100 (0.5%)	84,023 (9.0%)	4,219 (0.4%)
National Ocean Service (NOS)	561,187	552,679	583,900	22,713 (4.0%)	203,847 (53.6%)	31,221 (5.6%)
Coastal Science and Assessment: Competitive Research	13,000	20,000	18,000	5,000 (38.5%)	18,000 (N/A)	-2,000 (10.0%)
Ocean and Coastal Management and Services: Coastal Management Grants	75,000	75,000	110,000	35,000 (46.7%)	110,000 (N/A)	35,000 (46.7%)

National Marine Fisheries Service (NMFS)	882,957	875,260	924,889	41,932 (4.7%)	114,405 (14.1%)	49,629 (5.7%)
Procurement, Acquisition, and Construction (PAC)[†]	2,303,684	1,607,613	1,806,749	-496,935 (21.6%)	183,743 (11.3%)	199,136 (12.4%)
National Environmental Satellite, Data, and Information Systems	1,859,699	1,412,263	1,500,542	-359,157 (19.3%)	99,831 (7.1%)	88,279 (6.3%)

[†]Omnibus figures taken from the Division B, Commerce, Justice, Science and Related Agencies Appropriations Act <http://docs.house.gov/billsthisweek/20180319/DIV%20B%20CJS%20SOM-%20FY18-OMNI.OCR.pdf>.

*FY 2019 budget request figures taken from the http://www.corporateservices.noaa.gov/nbo/fy19_bluebook/FY19-BlueBook.pdf.

‡Note that these figures do not reflect transfers or funds derived from recovery of prior year obligations.

National Institutes of Standards and Technology

(In thousands of \$)

	FY 2018 Enacted	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
NIST, total	1,198,500	985,000	1,037,500	-161,000 (13.4%)	408,428 (64.9%)	52,500 (5.3%)
Scientific and Technical Research and Services	724,500	720,000	724,500	0	151,071 (26.3%)	4,500 (0.6%)
Industrial Technology Services	155,000	145,000	155,000	0	139,906 (926.9%)	10,000 (6.9%)
Hollings Manufacturing Extension Partnership (MEP)	140,000	140,000	140,000	0	140,000	--
Manufacturing USA	15,000	5,000	15,000	0	-94 (0.6%)	10,000 (200.0%)

Economic Development Administration

(In thousands of \$)

	FY 2018 Enacted	FY 2019 Request	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
EDA, total	301,500	14,937	301,500	305,500	4,000 (1.3%)	290,563 (1,945.3%)	4,000 (1.3%)
Economic Development Assistance Programs	262,500	0	262,500	266,500	4,000 (1.5%)	266,500 (N/A)	4,000 (1.5%)
Public Works	117,500	0	117,500	117,500	--	117,500 (N/A)	--
Economic Adjustment Assistance Program	37,000	0	37,000	37,000	--	37,000 (N/A)	--

Regional Innovation Program	21,000	0	21,000	25,000	4,000 (19.0%)	25,000 (N/A)	4,000 (19.0%)
Partnership Planning	33,000	0	33,000	33,000	--	33,000 (N/A)	--
Technical Assistance Program	9,500	0	9,500	9,500	--	9,500 (N/A)	--
Research and Evaluation	1,500	0	1,500	1,500	--	1,500 (N/A)	--
Salaries and Expenses	39,000	14,937	39,000	39,000	--	24,063 (161.1%)	--

Department of Justice

(In thousands of \$)

	FY 2018 Enacted	FY 2019 House	FY 2019 Senate	Senate vs. FY 2018	Senate vs. Request	Senate vs. House
DOJ, total	30,296,264	31,101,251	30,698,764	402,500 (1.3%)	2,677,760 (9.6%)	-402,487 (1.3%)
Research, Evaluation, and Statistics	90,000	94,000	90,000	--	13,000 (16.9%)	-4,000 (4.3%)
National Institute of Justice	42,000	44,000	42,000	--	6,000 (16.7%)	-2,000 (4.5%)
Juvenile Justice Programs	282,500	199,000	297,000	14,500 (5.1%)	67,500 (29.4%)	98,000 (49.3%)
Community Oriented Policing Services	275,500	N/A	310,000	34,500 (12.5%)	N/A	N/A
Office on Violence Against Women	492,000	493,000	497,500	5,500 (1.1%)	12,000 (2.5%)	4,500 (0.9%)

Sources and Additional Information:

- The CJS Appropriations bill, and a press release with selected details, can be found on the Committee's website at <https://www.appropriations.senate.gov/news/committee-advances-fy2019-commerce-justice-science-appropriations-bill>.
- The full Appropriations Committee report for the CJS Appropriations Bill is available at <https://www.appropriations.senate.gov/imo/media/doc/FY2019%20CJS%20Appropriations%20Act,%20Report%20115-2751.pdf>.