US omnibus spending bill supports materials research

At the end of 2020, a unique year that saw the US Congress deal with a number of issues related to the COVID-19 global pandemic, US federal legislators passed both a USD\$900 billion COVID relief package and a USD\$1.4 trillion government funding package that gives critical pandemic aid and secures federal agency operations through 2021. The bill passed based on a 359–53 vote in the US House of Representatives and 92–6 vote in the US Senate. The president signed the measure into law on Dec. 27, 2020.

Highlights of the bill include funding for quantum information science and artificial intelligence research, both of recent priorities for the materials research community (see SCIENCE POLICY in the January, March, April, and November 2020 issues of *MRS Bulletin*). Funding is also appropriated to the Office of Science at the US Department of Energy (DOE) for the grid storage launchpad, a program designed to accelerate materials development testing and independent evaluation of battery materials and battery systems for grid applications.

The bill provides USD\$695.9 billion to the US Department of Defense

(DoD), including USD\$68.7 billion for the Overseas Contingency Operations fund for international purposes. Whereas this total represents a USD\$9.7 billion decrease compared to FY 2020, the bill does provide USD\$107.1 billion in military R&D, an increase of 2.5% compared to FY 2020. The total includes overall increases across military branches in basic and applied research, as well as USD\$2.7 billion in defense medical research, a 6% increase compared to FY 2020.

The funding bill also provides increases to next-generation technologies in the DoD, including hypersonics research, unpiloted systems, and military applications of fifth-generation mobile wireless technology. There is also USD\$136.5 billion for the immediate modernization of military equipment, a 5% increase compared to FY 2020. (See SCIENCE POLICY in the March 2021 issue of *MRS Bulletin* for more detailed news coverage of funding for hypersonics research at the DoD.)

So far as the Department of Energy is concerned, the USD\$7 billion funding allocation for the Office of Science represents a marginal increase over FY 2020 funding levels, with offices for applied energy R&D all receiving

level funding or modest increases. Congress, through the bill, increased funding for quantum information science by 26% to USD\$245 million and for artificial intelligence and machine learning by 41% to USD\$100 million compared to FY 2020 funding levels.

The budget for the Advanced Research Projects Agency–Energy (ARPA-E) was increased from USD\$425 million in FY 2020 to USD\$427 million. Final bill provisions recommend that Congress increase its budget to USD\$761 million by fiscal year 2025 and expand the agency’s mission to encompass nuclear waste cleanup and efforts to improve the resilience, reliability, and security of energy systems.

In regards to the National Science Foundation (NSF), Congress increased the budget for NSF’s disciplinary research directorates by 3% over FY 2020 to USD\$6.91 billion. Congress directed NSF to provide at least level support for “core research” and increased funding for quantum information science by 113% to USD\$226 million and artificial intelligence research by 87% to \$868 million over the fiscal year 2019 amounts.

The bill increases the main research account for the National Institute of Standards and Technology (NIST) to USD\$788 million. NIST will increase support for quantum information science from USD\$40 million in FY 2020 to USD\$46.5 million and also increase funding for artificial intelligence research by at least USD\$6.5 million over FY 2020 funding levels. Smaller increases are specified for programs in materials research, and carbon dioxide monitoring and removal. Congress also cut the NIST budget for facilities construction and repair by a third over FY 2020 to USD\$80 million.

The Materials Research Society has been advocating for science and technology specialists in both the Congressional Research Service and the Government Accountability Office, which sees fruition in the appropriations bill.

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