



TO: Staff of the House of Representatives Committee on Science, Space, and Technology
FROM: Association of American Universities
(Contacts: Julia Jester [julia.jester@aau.edu] & Hanan Saab [hanan.saab@aau.edu])
RE: Request for Feedback on Future Stimulus Package
DATE: April 13, 2020

VIA EMAIL: SST.Stimulus@mail.house.gov

The Association of American Universities (AAU) appreciates the opportunity to respond to the Committee's request for ideas to be included in any future near-term response and longer term economic stimulus package(s) developed by the House to address and mitigate the deleterious impacts of the current COVID-19 crisis. We appreciate your leadership at this time of crisis when science and technology are critical to combating the pandemic, saving lives, and to assuring our nation's future health, economic, and national security. The Committee's leadership within Congress is needed to illustrate not only the critical role of science and engineering in this pandemic but the importance of fortifying the government-university partnership now and for years to come.

While AAU members will also provide inputs independently, we offer some high-level recommendations in this response regarding three agencies within the Committee's jurisdiction that support a significant share of grants and contracts competitively awarded to AAU members: The Department of Energy (DOE), National Science Foundation (NSF), and National Aeronautics and Space Administration (NASA).

America's leading research universities are deeply engaged in responding to the COVID-19 pandemic. They are providing expertise and material support to help mitigate the pandemic's effects on both individuals and society, and they are adapting their operations during the crisis. During this time, the university research in many non-COVID-19 related areas is being impacted significantly. We have captured these concerns in our [April 7 letter](#) encompassing many areas across the university community in need of research relief. Included in that letter is a request for \$26 billion in funding to address the immediate pandemic impacts for all research agencies, including DOE, NSF, and NASA. That request, however, does not include anticipated infrastructure needs.

General research needs (both within and outside the Committee's jurisdiction):

- **Support for the scientific workforce.** As university students and graduates enter an increasingly hamstrung economy and uncertain job market, the expansion of traineeship, fellowship and internship opportunities will be integral to support the human capital at the core of the American research enterprise. It is essential that we build the capacity to expand experiential learning opportunities and early career research faculty awards. By extending the length of eligibility for key programs – as well as backfilling and bridging existing support – Congress can help alleviate economic stressors on students, scholars, and postdocs.

- **Addressing the slow-down in research.** During and following the pandemic, substantial funds will be needed to sustain research and maintain the national research infrastructure. Research efforts have been broadly impacted by the requirement for social distancing. While some groups can engage in data analysis or computational studies, many others are limited in their ability to make progress by lack of lab access or engagement in the field. This limitation is particularly acute for trainees in wet lab and engineering research, where the requirement for laboratory facilities make social distancing impossible, and in fields of social sciences, medical and health related research where there is direct interaction with human subjects. Due to research stoppages and slowdowns directly resulting from the COVID-19 pandemic, graduate students and postdoctoral researchers are delayed in their career progress, original timelines and targets for grant completions. These timelines are increasingly unrealistic, and significant costs are being accrued in salaries, idled equipment, and research studies that had to be ramped down and stopped and that in the future must be re-started. In brief, during the slow-down, academia's research mission has been impaired, with significant financial costs. Sadly, some of the greatest burden is falling on early-career researchers.
- **Funding the restart of research and lab reconfiguration.** Additional funding in the form of supplements for restarting research (e.g., recreating the necessary cell, plant, or animal lines) will be important, both for institutions and for individual principal investigators, but agencies do not yet have additional funds to devote to this purpose without harming other research programs or future funding of new programs. Funds to address lost productivity during the slow-down will also be needed for many programs to meet their original goals. Universities have also made significant financial contributions both in terms of donating equipment and PPE, and in making space and facilities available. This should be recognized, perhaps through some sort of credit or other compensation. To restart work, lab reconfiguration may also be necessary. New protocols will be needed to ensure proper social distancing and COVID-19 mitigation measures to protect our researchers' health. This will likely necessitate a reconfiguration of many laboratory spaces and rethinking how scientists and their staffs interact with one another, which should make lab spaces more resilient to future crises.
- **Maintaining and sustaining core research facilities and other research services.** In many cases, there are sharply reduced (or no) user fees flowing to support core facilities and institutional research services. Although such services are typically funded by direct charges to grants, staff salaries continue even during times when work in these core facilities has been halted and revenue streams have dried up. This essential university research infrastructure may become unsustainable unless additional support is provided.
- **Addressing visa issues.** Due to the closures of consulates and other logistical problems, visa issues for foreign Ph.D. students, postdocs, and others are building and more challenges are expected in the coming year. These foreign researchers form a critical component of the research enterprise, and they represent a significant fraction of the pipeline for the future STEM workforce. Visa and immigration rules will need some flexibility and consideration, otherwise the U.S. will lose many talented STEM workers who normally arrive and stay in the U.S. through graduate programs. Agencies responsible for these visas may need additional resources to allow for the pent-up demand, and flexibility in requirements may require legislative action.
- **Tax incentives for industry-sponsored research.** Corporate sponsored university-based research is important to national interests and the research capacity of universities. It provides not only a source for funding but a source of intellectual connection to applied problems of importance to industry. Considering the economic damage to corporations, industrial research funding to

universities may be diminished, and could be encouraged by revising the R&D tax credit and changing other incentives such as limitations for industry-funded research in facilities funded by tax-exempt bonds.

Agency-specific recommendations

AAU recommends that the Committee consider a diverse set of ideas to bolster our investment in U.S. research infrastructure. We believe research infrastructure should be integrated into any broader infrastructure-investment legislation the Congress considers. We offer the following recommendations that focus on existing needs, initiatives, and programs that can be ramped up efficiently and quickly:

Agency	AAU Recommendations
DOE	<ul style="list-style-type: none"> • Provide additional resources to the Department of Energy’s (DOE) Science Laboratories Infrastructure Program, which provides critical funding to maintain, repair, and upgrade core DOE national laboratory and scientific user facilities/operations. • Strengthen high-performance computing to leverage new Artificial Intelligence and Machine Learning applications • Support investments in DOE’s Grid Modernization Initiative • Create a parallel program to the Energy Frontier Research Centers to support key needs in applied energy
NASA	<ul style="list-style-type: none"> • Extend flexibilities to external research agreements and graduate students supported by affiliated university grants • Provide additional funding for planetary defense in order to mitigate future low-frequency, high-impact global events • Increase funding to renovate and improve aging facility infrastructure to allow improved opportunities for university engagement
NSF	<ul style="list-style-type: none"> • Increase funding for NSF’s Major Research Instrumentation and the Mid-scale Research Infrastructure, and Major Research Equipment and Facilities Construction (MREFC) programs • Increase funding for RAPID/EAGER grants • Revitalize the NSF’s Academic Research Infrastructure program to provide ample access and opportunity for institutions across the country to support lab modernization, upgrades, and maintenance backlog • Increase support for NSF Cyberinfrastructure programs • Increase investments in support of smart infrastructure • Bolstering innovation through the Industry-University Cooperative Research Centers • Establish a national or international research network on pandemics, natural disasters, and climate change, to identify and address major issues underlying those topics. Funding to develop these collaborations might be through existing NSF mechanisms.

In addition to these areas, AAU also supports:

- Government support for the development and use of shared core research facilities.
- Working with industry, universities, nonprofit research organizations, and other stakeholders to identify innovative and creative ways to finance major scientific infrastructure projects.
- Reinvigorating NIST Research Construction Grants to develop new research infrastructure.
- Creating infrastructure opportunities through external grant programs at EPA (STAR) and NOAA (OAR Cooperative Research) under the Committee's jurisdiction
- Funding expansion of broadband capacity and access: including enhancing broadband infrastructure to better safeguard research and development against future crises
- Sustained investments across all three agencies, specifically NSF, in interdisciplinary and discipline-based repositories to ensure data from federally funded research is available for reanalysis and reuse. The ability to rapidly share and find research data will be critical in the fight against COVID-19, in addressing future public health crises, and in accelerating and advancing innovation and scientific advances across fields.

We thank the Committee for soliciting input and ideas from the science and engineering community. We are ready and willing to assist your efforts to ensure the U.S. research enterprise emerges from the COVID pandemic stronger, more resilient, and positioned to bolster American economic competitiveness and security.