



Association of American Universities
Policy Recommendations for President-Elect Trump



ASSOCIATION OF AMERICAN UNIVERSITIES

January 19, 2017

Dear President-elect Trump:

On behalf of the [Association of American Universities \(AAU\)](#), I am pleased to offer the following policy recommendations for consideration by you and your Administration.

AAU comprises [62 distinguished institutions](#) that continually advance society through education, research, and discovery. These universities are critical to American innovation and the creation of new businesses and jobs. The federal government's role in supporting scientific research, and in helping students of all backgrounds to attend and succeed in college, has played a vital role in making America the global leader in science, innovation, and higher education.

In the following document, we offer a series of policies recommendations related to research, innovation, technology, and higher education. We believe they would help our nation sustain its pre-eminence in these critical areas, thereby strengthening our economy, global competitiveness, and job creation; health; national security; and quality of life. The recommendations cover the overall key areas the new administration should specifically focus on including the federal budget, regulatory reform, scientific infrastructure, and tax policy, as well as two White House offices and several departments and agencies.

We look forward to working with you and your Administration as you develop and implement policies to meet the nation's challenges. Your transition team can contact me and the AAU staff at marysuec@aau.edu or 202-408-7500.

Sincerely,

Mary Sue Coleman
President

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FEDERAL BUDGET

REVITALIZE THE FEDERAL BUDGET BY INVESTING IN FUTURE NATIONAL PROSPERITY.

Federal spending for research and higher education has proven to be a fruitful investment for our country, yielding rich returns to the American people in the form of medical advances, stronger national security, technological breakthroughs that have transformed our nation and the world, and a highly capable workforce incurring long-term economic growth and employment. Unfortunately, the pace of U.S. investment in these areas has slowed, while other countries have rapidly increased their spending on scientific research and higher education, thereby raising their economic competitiveness. Our competitors are racing forward while we are idling in place, jeopardizing our position as the global innovation leader and creating an innovation deficit.

U.S. investments in research and higher education primarily occur in the discretionary part of the federal budget, especially in non-defense discretionary spending. This shrinking portion of the budget limits our ability to set sufficient spending levels for these investments. Any sustainable effort to improve the ability of the federal government to make sound and sufficient investments – whether in research and education, highways, airports, water systems, or other infrastructure – must include a rebalancing of the discretionary budget with the other key components of the federal budget. As such, AAU urges the new Administration to work with the next Congress to:

- lift budget sequestration-level discretionary spending caps in FY18 and beyond and continue to provide proportional relief for defense and non-defense discretionary spending;
- set non-defense discretionary spending on a sustainable growth path that reflects inflationary and population growth and that permits adequate investments in our nation’s future prosperity;
- enact tax reforms that preserve strong incentives for charitable giving and that spur economic growth and produce new revenue; and
- make meaningful mandatory spending reforms that that do not harm either the vital work of academic medical centers or those most vulnerable in society.

Tackling these budget challenges will provide the resources needed to prevent an innovation deficit. The result will be a smarter, stronger, safer, healthier, and more competitive and prosperous United States for today and for future generations.

TAX POLICIES

EXTEND AND IMPROVE EXISTING TAX POLICIES THAT AID STUDENTS AND FAMILIES IN FINANCING HIGHER EDUCATION.

Tax reform is an essential part of the solution to our nation's fiscal and global competitiveness challenges. Although important decisions about tax rates on individuals and businesses rightfully will dominate much of the tax reform policy discussion, other significant tax issues will have consequences – intended or otherwise – for our nation's economic competitiveness.

Because our nation's competitiveness depends upon an educated citizenry and well-trained workforce, the federal government supplements grants and loans with tax measures to help students and their families save for and afford higher education. The Administration should support and improve existing tax policies that help with:

Saving for College –

- Support and improve Section 529 Education Savings Plans and Section 530 Coverdell Education Savings Accounts.

Paying for College –

- Create a simplified, and expanded American Opportunity Tax Credit (AOTC)-style credit that is made available beyond the first four years of college and better assists low-and middle-income students;
- Retain the Section 117(d) employer-provided qualified tuition reduction, which helps educational institutions' employees and family members – ranging from maintenance and janitorial staff to faculty and administrative staff – afford a college education. This provision also helps reduce the cost of graduate education by allowing universities provide their graduate students with a non-taxable tuition reduction.
- Expand Section 127 employer-provided educational assistance to allow employers to offer higher levels of tax-favored tuition assistance to their employees (the \$5,250 annual limit, which has not changed since the 1970s, should be increased with an automatic adjustment for inflation), and broaden the eligibility of Section 127 benefits to include partners and dependents of employees and permitting the repayment of student loans.
- Revive the Section 222 above-the-line deduction for qualified tuition and related expenses;

Managing Debt –

- Maintain the Section 117 tax exclusion for qualified scholarships, fellowships, and grant funds and broaden it so that such aid can be used to

cover non-tuition expenses like room and board;

- Preserve the Section 221 above-the-line deduction for student loan interest (SLID);
- Preserve the tax exclusion for student loan debt forgiven for individuals who work for a specific period in certain professions or employers, and expand this exclusion to cover amounts forgiven under the Income-Based Repayment (IBR) and Income Contingent Repayment (ICR) programs.

PRESERVE STRONG TAX INCENTIVES FOR CHARITABLE GIVING, INCLUDING THE DEDUCTION FOR CHARITABLE CONTRIBUTIONS AND THE IRA CHARITABLE ROLLOVER.

Research universities, in an era of state disinvestment and diminished federal research funding, increasingly rely on philanthropy to help achieve their nonprofit missions of teaching, research, and public service. Tuition does not cover the full costs of educating students and research grants do not cover the full costs of the research enterprise. The federal income tax deduction for charitable gifts is a vital incentive to individuals, families, and businesses to make donations that make it possible for universities to fulfill these missions.

Charitable donations are the primary source of funds for college and university endowments, which are a key source of funding for need-based financial aid to ensure that students can afford college no matter what their incomes. By offering financial aid grants, many institutions with large endowments make college free or very low-cost for thousands of low- and moderate-income students. This grant aid also reduces post-graduation debt. In addition to funding financial aid for those who do not pay the full tuition price, endowment spending subsidizes the difference between the tuition price and the actual cost of education for all students.

REJECT PUNITIVE PROPOSALS SUCH AS EXCISE TAXES ON UNIVERSITY ENDOWMENTS.

Endowments provide universities critical resources to achieve their educational missions of teaching, research, and public service. Excise taxes or other punitive measures would significantly impair universities' ability to carry out these missions. The bulk of university endowment spending is dedicated to purposes legally specified by donors, particularly student scholarships, research into diseases, new laboratories, and teaching and research faculty positions. Endowments are subject to market volatility, and must be prudently managed for the long term to strike a balance between the needs of current students and preserving resources for future generations. Every year, universities spend endowment earnings on current needs, while also reinvesting some of the earnings to ensure that future students and faculty will benefit. Universities rely on the flexibility of endowment spending rates year to year, because even though differences between spending rates might seem small, they can dramatically affect an endowment's principal over time.

REMOVE OR EASE RESTRICTIONS ON TAX-EXEMPT BONDS THAT UNDULY RESTRICT INNOVATIVE PARTNERSHIPS BETWEEN UNIVERSITIES AND BUSINESSES AND REJECT CALLS TO ELIMINATE THE TAX EXEMPTION FOR INTEREST ON NEW PRIVATE ACTIVITY BONDS.

Tax-exempt bonds are an important financing tool for universities to perform research in campus facilities, renew aging campus infrastructure and build cutting-edge classrooms and laboratories. Moreover, research universities are increasingly partnering with industry and small technology companies to address tough science and technology challenges, but restrictions on the use of facilities financed by tax-exempt bonds are a barrier to innovations from these partnerships. Proposals to eliminate the tax exemption for interest on new private activity bonds would effectively prevent private universities from using tax-exempt bond financing, thereby removing an important mechanism for financing infrastructure improvements critical to teaching and research.

INCREASE THE R&D TAX CREDIT FOR INDUSTRY-SPONSORED R&D ACTIVITIES CONDUCTED AT UNIVERSITIES SO THAT IT EQUALS THE BENEFIT PROVIDED FOR “IN-HOUSE” RESEARCH.

The R&D tax credit promotes greater collaboration between industry and universities. The R&D credit not only encourages industry to take on new research and development challenges, but also creates additional learning and employment opportunities for university students and fosters start-up companies, many of which result from new technologies developed at universities because of industry-funded research.

REGULATORY REFORM

REVIEW REGULATIONS OF RESEARCH UNIVERSITIES.

Research universities recognize their responsibility to be good stewards of federal taxpayer resources. Their educational missions of teaching, research, and service to society necessarily engage students, faculty, and staff in a wide scope of activities that are regulated by nearly every major federal agency, as well their state and local governments. Compliance with federal regulations must be a top priority for AAU institutions and other universities; however, universities should also review their existing institutional policies and procedures to ensure that they are not adding unnecessary and costly requirements upon themselves.

Research universities are among the most regulated entities in the U.S., and far too often face duplicative and inefficient regulations that are not sensible or scaled to risk. While many federal regulations and reporting requirements that affect universities' research and education activities are well intentioned, the cumulative burden imposed by the many layers of regulations have made them increasingly dysfunctional and, in some instances, counterproductive.

STREAMLINE, HARMONIZE, AND ELIMINATE OVERLY BURDENSOME, COSTLY, AND UNNECESSARY REGULATIONS AFFECTING THE CONDUCT OF SCIENTIFIC RESEARCH.

The costs of inefficient regulations are not only financial. Such regulations also reduce faculty productivity by diverting time from research and teaching. For example, a [2007 study](#) by the Federal Demonstration Partnership showed that 42 percent of faculty time spent on conducting federally funded research was actually for administrative duties, and a [follow-up survey](#) showed similar results. Both studies show that a sizeable portion of those administrative duties is attributable to compliance with federal regulations.

We therefore urge the new Administration to:

- Act on regulatory reform provisions included in recent legislation and recommended in congressionally requested reports by [The National Academies' Committee on Federal Research Regulations and Reporting Requirements](#), [Government Accountability Office \(GAO\)](#) and [National Science Board](#). Consistent with recommendations in these reports, we recommend that the incoming Administration do the following:
 - **As required by the 21st Century Cures Act, evaluate and revise current Public Health Service Conflict of Interest Reporting Requirements.** While well intentioned and important, we believe these rules should be modified in ways that maintain their effectiveness while reducing the burden and associated costs imposed upon research faculty and institutions.

- **Review animal research regulations** to ensure the safety and proper treatment of laboratory animals while reducing unnecessary administrative work and ensuring consistency and harmonization among National Institutes of Health (NIH), U.S. Food and Drug Administration (FDA) and U.S. Department of Agriculture (USDA) requirements.
- **Align International Traffic in Arms Regulations (ITAR) export control definitions pertaining to fundamental research with Export Administration Regulations (EAR).** We support aligning the yet to be determined Department of State ITAR definition with the EAR definition of fundamental research being used by the Department of Commerce.
- **Revise Federal Acquisition Regulation (FAR) 4.703** to eliminate the requirement that paper records for purchases made with grant and contracts funds be retained for a period of three years.
- **Simplify and streamline current grant application and reporting requirements across federal agencies as called for in Section 201 of the American Innovation and Competitiveness Act (AICA).** Possible changes include: streamlining pre-award (or proposal) requirements; requiring detailed budgets and other information just-in-time; using preliminary proposals and white papers; standardizing grant formats and bio sketch requirements across agencies; eliminating duplicative reporting; and implementing a unified federal system for report submission.
- Quickly stand up the new Research Policy Board (RPB) called for in Section 2034 of the 21st Century Cures Act. This provision calls on the Office of Management and Budget (OMB) Director to create a new RPB with 10 or fewer federal members (representing OMB’s Office of Information and Regulatory Affairs, Office of Science and Technology Policy (OSTP), HHS, National Science Foundation (NSF) and others that support or regulate research) and 9 -12 representatives from academic or other non-profit research institutions or organizations with relevant expertise. RPB members are to be appointed through a formal process including nominations by members of the research community. The board is charged with coordinating and improving regulations and policies, identifying policy and regulatory gaps and challenges, and conducting ongoing assessment of regulatory burden that will enhance efficiencies and optimize the federal investment in research.
- Establish the National Science and Technology Committee (NSTC) interagency working group on research regulations required by AICA. This working group should work collaboratively with the RPB required by the 21st Century Cures Act.
- Reduce Inspector General (IG) Overreach and Unnecessary Audit Burden. To combat waste, fraud and abuse, most recipients of federal grants are required to be audited under the Single Audit Act of 1984 and the Single Audit Act

Amendments of 1996. Grantees spend significant time and resources to ensure that internal systems and controls comply with federal requirements, and a primary intent of the Single Audit Act is to affirm compliance as it relates to all federal programs. Therefore, other than specific program close-out audits, broader audits by IG from multiple federal agencies, which occur frequently, are usually duplicative and unnecessary. To improve efficiency of both oversight and compliance, when a grantee has been deemed low-risk under its single audit, more broadly focused audits by an IG should be permitted only when the IG definitively identifies due cause and justification for such an audit.

PROVIDE SPECIFIC REGULATORY REFORMS WITHIN THE U.S. DEPARTMENT OF EDUCATION.

We urge the new Administration to provide our institutions with regulatory relief by supporting reform or repeal of certain specific Department of Education regulations. Rules and regulations should be developed and implemented to mitigate against and address the greatest risks. A risk-based approach to regulation would alleviate compliance burden and costs for lower-risk institutions.

A comprehensive set of recommendations for improvements to higher education regulations were provided in [*Recalibrating Regulation of Colleges and Universities*](#), a 2015 report of the Task Force on Federal Regulation of Higher Education. The Task Force was the creation of a bipartisan group of senators, including Lamar Alexander, Barbara Mikulski, Michael Bennet, and Richard Burr. Examples of specific higher education regulations that should be modified, and in some cases, repealed by the new Administration include:

- **Program integrity regulations** – Current regulations are one size fits all and treat institutions with no problems the same as those that have taken advantage of students and taxpayers.
- **Teacher preparation regulations** – The regulations will result in significant new administrative burden for institutions and substantial confusion for students and financial aid offices, with no clear benefit to students in teacher preparation programs.
- **Borrower defense** – The final regulation does not provide an understandable framework that ensures the defense to repayment is used appropriately to provide relief where warranted. The process should be fair, and legitimate institutions should be assured adequate consideration.
- **Annual Compliance Audit** – The Department of Education has determined that an annual compliance audit of the Student Financial Assistance (SFA) Cluster is required. This is in direct conflict with the underlying principles of the Single Audit Act Amendments of 1996 and the recently issued *Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards* (UG) and section 487(c)(ii) of the Higher Education Act of 1965 (HEA), as amended, which allows for a single audit of the institution to satisfy the requirement for a compliance audit. Therefore, the annual compliance audit being required by the

Department of Education should be eliminated.

- **Office for Civil Right (OCR) guidance on Title IX** – Several changes would improve the processes for resolving very difficult cases alleging sexual harassment and assault:
 - OCR should be required to resolve investigations within 24 months.
 - OCR should be required to share allegations with schools.
 - Institutions under investigation should not be required to sign voluntary resolution agreements without first having the opportunity to question or contest the findings if the school deems it appropriate.
 - Institutions should be able to appeal to and communicate directly with the central OCR rather than interacting only with investigators on campus.
 - OCR should be required to vet any rulemaking, major guidance, or dear colleague letters with the Department's Office of the General Counsel before issuance.
 - Any Title IX rules proposed by OCR that impose new obligations or legal requirements on the public should be deemed substantive rules that are subject to the Administrative Procedures Act notice and comment process.

SCIENTIFIC INFRASTRUCTURE

LAUNCH A MAJOR EFFORT TO REINVEST IN, RESTORE AND MODERNIZE U.S. SCIENTIFIC RESEARCH INFRASTRUCTURE.

Following World War II and after the Soviet launch of Sputnik in 1957, the U.S. government invested heavily in the development of scientific infrastructure at universities, national laboratories, and other federal research facilities. However, by the early 1970s, many federal programs that had previously existed to support construction and renovation of research facilities ended, and federal obligations for research facilities and large equipment in colleges and universities dropped significantly. During this period, the neglect of laboratory instrumentation and the erosion of the physical infrastructure for research threatened the long-term vitality of the U.S. scientific enterprise, especially given the significant investments that have been made in by Asian and European Nations in recent years.

To keep America at the forefront of scientific discovery, a renewed effort to invest in and reinvigorate U.S. scientific infrastructure is needed. To facilitate this effort, we recommend that the new Administration take the following steps:

- Include scientific infrastructure as a major component of any infrastructure package it presents to Congress.
- Such an infrastructure package should specifically aim to:
 - Provide a major one-time infusion of funds for NSF’s Major Research Instrumentation (MRI) and Major Research Equipment and Facilities Construction (MREFC) programs.
 - Provide \$300 million in one-time funding to support the NSF’s Academic Research Infrastructure (ARI) program, which is specifically authorized to support university efforts to renovate and upgrade existing research facilities to enable them to keep up with the rapid pace of scientific progress.
 - Provide funding to NSF to support mid-scale scientific facilities and infrastructure aimed at meeting critical scientific needs in areas such as acquisition of an incoherent scatter radar to fill critical atmospheric science observational gaps, replacement or upgrade of submersibles, beam line instrumentation for neutron science, and major upgrades of computational capability. The need for increased mid-scale infrastructure is one of the [“10 Big Ideas for Future NSF Investments.”](#)
 - Provide support for NIST Research Construction Grants to develop critical new research infrastructure.
 - Promote the development and increasing use by universities of shared core

research facilities.

- Provide additional resources to the existing Department of Energy (DOE) Science Laboratories Infrastructure Program (SLI) which provides critical funding to maintain, repair, and upgrade core laboratory facilities and operations.
- Working with industry, universities, nonprofit research organizations, and other stakeholders, identify innovative and creative new ways to finance major scientific infrastructure projects, including seeking state and local matching funds, public-private partnerships and other creative financing mechanisms.

SUPPORT RESEARCH AT NSF, NIST, DOE, AND DOD ON SMART INFRASTRUCTURE.

Key programs include:

- The Cyber-Physical Systems initiative at NSF, which integrates computational systems and algorithms into built structures such as roads and bridges to maximize efficiency and connectivity across a range of sectors.
- The DOE Grid Modernization Initiative, which is creating a more resilient, reliable, and secure power grid capable of adapting to a changing security and environment landscape.

INVEST IN DEVELOPING “TOOL CRAFTING” SKILLS TO ENSURE THE SCIENTIFIC WORKFORCE NEEDED TO MAINTAIN U.S. LEADERSHIP IN KEY FIELDS OF SCIENTIFIC RESEARCH.

Many of the most important advances in modern technology began with the development of scientific tools for research at universities. Examples include MRI, advanced x-ray detectors, advances in electron and optical microscopes, micromechanical and electronic devices, and research tools to make advanced materials. The ability to develop scientific tools – i.e. tool-craft – requires highly specialized and experienced mechanical, electronic, lithographic, accelerator, computer, and chemical personnel who are closely integrated into the educational research environment. Some research cannot be done without skilled tool-craft personnel. They also serve a vital training function for students.

Universities are finding it increasingly difficult to attract and retain essential tool-craft personnel. There are two reasons: 1) there is intense competition with industry for experienced tool-crafters; and 2) the research enterprise in recent years has focused on training students to conduct research but not to build and maintain the tools required to conduct very specialized research in areas of critical national need. The result has been a steady, crisis-level drop in the number of skilled university tool-craft personnel. Unless this is reversed, U.S. universities will be increasingly uncompetitive with European and Asian universities, which are investing heavily in this type of university human infrastructure.

Therefore, we recommend a new initiative to ensure that we have a trained cadre of workers with the specialized skills and technical capabilities needed to support the highly-specialized research facilities, instruments and tools that exist at U.S. research universities and our national laboratories, and in U.S. industry and manufacturing.

TASK OSTP WITH CONVENING A NATIONAL SCIENCE AND TECHNOLOGY COMMITTEE WORKING GROUP ON U.S. SCIENTIFIC INFRASTRUCTURE

Consistent with the recommendation made in the [Office of Science and Technology Policy section](#), to strengthen the role of the OSTP and NSTC in coordinating scientific programs, budgets, regulations and initiatives across federal research agencies, we recommend the creation of a new NSTC Working Group on U.S. Scientific Infrastructure to assess the effects of the serious decline in public and private funding for research infrastructure at U.S. universities and DOE and Department of Defense (DOD) National Laboratories.

This working group should:

- Assess existing and proposed new research instrumentation and infrastructure programs at all federal agencies, including those recommended above for the NSF and DOE, as well as the current state of infrastructure support provide by other major research agencies, including NIH, NASA, DOD, National Institute of Standards and Technology (NIST), and USDA.
- Conduct a critical review of the increasing financial pressures that impede the ability of research universities and other institutions to adequately support critical physical research infrastructure needs.
- Assess what specific technical skills and training needs to be provided and how to effectively provide support for this training to ensure the skilled labor force required to support the highly technical and specialized infrastructure required to sustain the U.S. scientific enterprise.

PROVIDE FUNDING TO SUPPORT EXPANDING BROADBAND CAPACITY AND ACCESS

As part of any infrastructure program, the Administration should foster the construction of more broadband networks that are deployed more efficiently and more effectively. Highly advanced, future-proof broadband networks will promote economic development and our country's technological leadership position; support cutting-edge research activities in the U.S.; and better prepare students and adult learners for the information economy. The return on investment in broadband has been well documented, leading to increases in job creation, higher employment rates, and overall enhanced economic development.

Specifically, a broadband infrastructure initiative should focus upon:

- Using public-private partnerships to help fund the construction of more, faster,

and safer broadband networks.

- Streamlining and centralizing broadband activities to optimize their effectiveness.
- Maximizing the connectedness of “anchor” institutions, such as universities and libraries, that are vital for promoting digital literacy and broadband adoption. Broadband access within and across these institutions has a remarkable social, educational, and economic multiplier effect.
- Leveraging the research community’s experience with world-class network capacities to further develop a rationally engineered broadband infrastructure that will better safeguard critical research and development activities from cyber-attacks.

ENHANCE U.S. CENSUS BUREAU’S DATA INFRASTRUCTURE TO BETTER ASSESS AND EVALUATE THE IMPACT FOR FEDERAL INVESTMENTS IN SCIENCE, INNOVATION AND HUMAN CAPITAL

The incoming Administration should work with the Census Bureau to develop and utilize a new series of administrative records, data and economic statistics to help the government better understand the impact of federal and private investments in science and higher education to U.S. innovation, jobs growth and economic competitiveness. This information would help to inform future federal R&D policy and funding decisions.

This initiative builds upon current efforts by the Census Bureau’s existing economic statistics program to broaden and modernize its approach to the development of statistics that extend beyond traditional survey data. These efforts have already resulted in significant progress in demonstrating exactly how federal investments in scientific research result in new business startups, increased earnings, and increased firm productivity.

For this this new data infrastructure to be fully developed, operationalized and institutionalized, the Census Bureau will need approximately \$10 million a year.

ACROSS FEDERAL RESEARCH AGENCIES

PROVIDE SUSTAINED AND BALANCED GROWTH FOR BASIC SCIENTIFIC RESEARCH.

Over the past decade, numerous reports have urged greater federal investment in basic scientific research. From the 2007 National Academies' report, [*Rising above the Gathering Storm*](#), to the more recent 2014 American Academy of Arts and Science report, [*Restoring the Foundation*](#), there is a consensus that the federal government has a clear and strong role in investing in basic research because industry cannot and will not invest in such early-stage research. Last year, more than 500 leading organizations and CEO's and Chairmen of several major U.S. corporations endorsed [*Innovation: An American Imperative*](#), a call for a renewed federal commitment to scientific discovery and investments in scientific research.

Recently, Congress signaled its strong support for important scientific research conducted by NIH and NSF by passing the 21st Century Cures Act and AICA. To sustain the momentum created by these actions, we urge the new Administration to support steady and sustained real growth in funding for basic scientific research by doing the following:

- Address the nation's most pressing scientific and societal challenges by committing to a new era in federal research investment, providing for at least four percent annual real growth in scientific research funding at key federal agencies including the NIH, NSF, DOE Office of Science, DOD, NASA, National Oceanic and Atmospheric Administration (NOAA), and NIST.
- Continue to grow the Agricultural and Food Research Initiative, the competitive scientific research program supported by the USDA's National Institute for Food and Agriculture (NIFA).
- Support funding for the National Endowment for the Humanities (NEH) to continue to provide critical research grant funding for the activities of hundreds of educational institutions, nonprofit organizations, and individual scholars nationwide. NEH is integral to our national interests in the humanities, from capturing the war experiences of returning veterans to supporting university partnerships that improve K-12 education.
- Sustain funding for efforts to advance high-risk, high reward research to support the missions of DOD, DOE, and the major national intelligence agencies through the work of the Defense Advanced Research Projects Agency (DARPA), the Advanced Research Projects Agency for Energy (ARPA-E) and the Intelligence Advanced Research Projects Activity (IARPA).
- Identify new and innovative ways to ensure that there is adequate support for young and up-and-coming scientists. This includes expanding funding for young investigators.

- Provide federal support for new and innovative programs aimed at advancing the priority contained in the NSTC’s May 2013 Federal STEM Education 5-year strategic plan (FC-STEM) to [Design Graduate Education for Tomorrow’s STEM Workforce](#). This priority calls for providing “graduate-trained STEM professionals with basic and applied research expertise, options to acquire specialized skills in areas of national importance, mission-critical workforce needs for the CoSTEM agencies, and ancillary skills needed for success in a broad range of careers.”

HARNESSTHE FEDERAL GOVERNMENT’S INNOVATION, SCIENTIFIC, AND ENGINEERING RESOURCES TO ADDRESS ENERGY AND ENVIRONMENTAL CHALLENGES FACING OUR NATION.

Addressing the nation’s challenges, whether finding new cures, ensuring our ongoing energy independence, protecting our environment, growing the economy and producing high-wage jobs, or securing our nation both at home and abroad, will require new scientific knowledge and technological advances. To help meet these societal challenges, we encourage the incoming Administration to:

- Continue cross-cutting science and technology initiatives in critical areas, including those in advanced manufacturing, STEM education, personalized medicine, brain and cancer research, big data, space, energy and environmental research, and accelerating the transfer of federally funded research from the laboratory to the commercial marketplace.
- Maintain and strengthen government support for, and use of, social science and humanities research to help understand and solve major national and global challenges. The social sciences and humanities will help maximize the effectiveness of new technologies and processes for addressing our nation’s most difficult challenges – cybersecurity, sustainable energy, water, transportation, and others – by improving understanding of whether and how people will use and be affected by those innovations.

BOOST AMERICAN INNOVATION AND ENTREPRENEURSHIP BY HELPING UNIVERSITIES TO FULFILL THEIR COMMITMENT TO DEVELOPING AND DISSEMINATING PROMISING UNIVERSITY DISCOVERIES FOR THE BENEFIT OF SOCIETY AND THE ECONOMY.

U.S. research universities are committed to enhancing their efforts to promote innovation, entrepreneurship, and the commercialization of research results to support the economic growth that undergirds our nation’s preeminent position in the global economy. To assist these efforts, the Administration should:

- Maintain the current legal framework for university technology transfer, as set forth by the Bayh-Dole Act, which was enacted with bipartisan support in 1980.
- Reject proposals to use the Bayh-Dole “march-in” rights – the purpose of which is to ensure that useful discoveries don’t lie dormant – to regulate drug pricing.

- Develop new proof-of-concept and gap funding programs that support the translation of ideas generated with federally funded research into viable commercial products. Too many promising university inventions languish in the “Valley of Death” – the point in the life cycle of an invention where it is too advanced to be eligible for research funding yet too early-stage for further investment and development by established companies or venture capitalists.
- Create and promote mechanisms for encouraging university-private sector research and educational partnerships that lead to the discovery and development of promising new products and services and which help to train future workers for the benefit of the U.S. economy and society.
- Support the NSF’s Innovation-Corp and similar programs at other research agencies including NIH and DOD. NSF’s I-Corp program has been instrumental in providing faculty researchers and graduate students with the entrepreneurial training needed to move research from the laboratory to the marketplace.
- Reject proposals that would undermine patent rights and make it costlier and riskier for universities, the start-up companies that emerge from them, and university licensees to enforce their legitimate patent claims; and
- Reject proposals that require recipients of federal grants to openly license materials or products developed from those grants. Open licensing is not a suitable, much less optimal, strategy in all instances, especially when the technologies in question are disruptive or require curation and quality control for successful, scalable implementation.

S STRENGTHEN AND HARMONIZE AGENCY POLICIES THAT ENSURE PUBLIC ACCESS TO THE RESULTS OF FEDERALLY FUNDED RESEARCH.

The research university mission of discovery and dissemination of new knowledge is carried out predominantly through publication in peer-reviewed scholarly journals, including open access publications. The dramatic advances in digital communication capabilities has increased the pace and breadth of access to scholarly publications, as demonstrated by the National Institutes of Health’s Public Access Policy and its PubMed Central. The federal government and the university community have a shared interest in making scientific results open and accessible to both the research community and the public. At that same time, for the system to function efficiently, it is critical that a set of uniform requirements be established across all federal agencies to support this shared objective and to facilitate university compliance with new federal public access requirements.

We urge the new Administration to:

- Maintain existing requirement that federal agencies develop and implement plans to make publications and data resulting from federally funded scientific research publicly available.

- Harmonize the procedures by which extramural grantees submit final peer-reviewed manuscripts or final published documents to the agencies' public access repositories. A multiplicity of divergent public access policies will substantially and unnecessarily increase the administrative burden on grantees.
- Consider creating a governmental portal through which federal grantees can submit their published manuscripts via a uniform compliance procedure for all funding agencies.
- Regarding public access to data, give OSTP a leadership role in determining exactly which high value data should be prioritized for sharing publicly. We would recommend that this specifically be confined to data supporting published journal articles and other publicly accessible scholarly works funded by the federal government.
- Allow universities working with scientific societies and other research community leaders to conduct demonstration projects to explore new, alternative ways to effectively store, share and improve data accessibility beyond data that support publicly accessible journals and other scholarly work.

PROMOTE THE CREATION AND DISSEMINATION OF KNOWLEDGE AND SCHOLARLY WORKS AT U.S. UNIVERSITIES BY PRESERVING THE CURRENT FRAMEWORK FOR COPYRIGHT PROTECTION.

Copyright supports the fundamental mission of colleges and universities to create and disseminate new knowledge and understanding through teaching, research, and scholarship. Postsecondary institutions are also among the nation's leading consumers of copyrighted materials; every year, colleges and universities purchase and license billions of dollars of copyrighted works, and their students, too, annually purchase billions of dollars of copyrighted works. Copyright promotes the creation of new works not only by granting proprietary rights to copyright holders but also by carefully limiting those rights to facilitate public access to, and use of, creative works. To protect this essential balance, we urge the Administration to:

- Reject any attempts to update or amend the Copyright Act that disrupt the basic structure of rights, namely: 1) the exclusive rights of copyright holders (Section 106 and 106A); 2) flexible fair use (Section 107); and 3) other limitations supporting additional public uses (Sections 108-122). This framework has been very successful; changes to the relationship among these grounding elements would destabilize the higher education ecosystem.

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

NAME THE PRESIDENTIAL SCIENCE AND TECHNOLOGY ADVISOR EARLY IN THE TRANSITION.

The designation of a Presidential Science and Technology Advisor and that individual's nomination as Director of OSTP should be early, ideally prior to or within a few weeks of the Presidential inauguration. This action will help ensure the selection of highly qualified candidates with strong science and technology credentials for later appointments in critical science and technology positions.

REAFFIRM AND STRENGTHEN THE PRINCIPLES THAT UNDERPIN THE UNIVERSITY-GOVERNMENT PARTNERSHIP.

The post-World War II partnership between the federal government and U.S. research universities has been a fundamental reason for American leadership in science and technology. This leadership has been critical to sustained long-term economic growth and prosperity in the U.S. Recent developments threaten this unique partnership, undermining universities' ability to conduct important research on behalf of the federal government and the American people. These include flat federal funding for key research agencies; increasing federal regulations and associated compliance costs; outdated and decaying scientific infrastructure and research facilities; and arbitrary restrictions on reimbursement to universities for the costs of conducting federal research that are not imposed upon other institutions that perform research. As the nation seeks to revive the economy and restore long-term growth, it is more important than ever to reinvigorate the government-university partnership.

To do so, President-elect Trump and his Administration should move quickly to reaffirm and strengthen the core principles that underpin the partnership:

- The federal investment in university-based research should continue to serve two vital national purposes: 1) supporting critical scientific research; and 2) educating the next generation of scientists, engineers, and scholars.

The federal government supports the direct and indirect – or facilities and administrative (F&A) – costs that universities incur in conducting federally funded research, most of which is supported by competitively awarded research grants. The government negotiates a realistic and reasonable rate for the reimbursement of the F&A costs spent by each individual university to maintain the research infrastructure, comply with federal regulations, and provide the operational support essential for the university to conduct the research.

- Because merit review of research grant proposals has proven to be the most effective way to fund the most promising and productive research and has been a major factor in establishing U.S. scientific leadership, research projects should be selected based upon scientific merit as judged by leading scientists in their field,

rather than on political or geographical considerations.

- Universities must ensure that research is conducted responsibly and with integrity by those who receive government funding.
- Universities must be accountable for the proper use of federal funds, but federal regulations should be risk based, should minimize burden and costs, and be harmonized across all federal agencies.

STRENGTHEN THE ROLE OF OSTP AND NSTC IN COORDINATING AND HARMONIZING SCIENTIFIC RESEARCH ACTIVITIES, FUNDING AND REGULATIONS ACROSS FEDERAL AGENCIES, SCIENTIFIC DISCIPLINES, AND IN SUPPORT OF NATIONAL GOALS.

The OSTP and NSTC should play a significant role in coordinating research budgets and programs across federal agencies. This includes helping to develop new multi-agency research initiatives and reviewing, harmonizing, and streamlining federal regulations associated with the conduct of research. To facilitate and improve the ability of OSTP and NSTC to fulfill this critical coordination role, we recommend the following:

- Increase OSTP's budget authority by requiring that OSTP review agency S&T budgets prior to submission to OMB and empowering it to alter the distribution of funding among S&T priorities based on their relative importance. This would increase the ability of OSTP to coordinate S&T expenditures among federal research agencies and to achieve broader national R&D objectives.
- Make the NSTC's authority for coordinating government science activities equivalent to that of the National Security Council (NSC) for coordination of U.S. security matters; in most other ways, the NSTC is modeled on the NSC.
- Quickly appoint an Associate Director for Science within the OSTP. Assign this individual the dual roles of providing advice to the President on matters of national importance where scientific expertise is required and ensuring the ongoing health of the U.S. scientific and academic research enterprise. Require the Associate Director for Science to work with the Administrator of OMB's Office of Information and Regulatory Affairs to find ways to streamline and harmonize federal research regulations, and eliminate those that are unnecessary.
- As required by section 201 of AICA, establish a new interagency working group on research regulations within the NSTC to be led by the OMB and OSTP. Under the law, this working group is to retrospectively review existing research regulations and make recommendations for eliminating, streamlining or improving these regulations with the goal of reducing compliance burdens and costs on researchers and universities. The working group is also to play a role in prospectively reviewing proposed regulations to ensure that they do not impose unnecessary burdens and costs on research performers.

DEPARTMENT OF DEFENSE

PROVIDE ROBUST SUPPORT FOR BASIC RESEARCH FUNDING WITHIN DEFENSE SCIENCE AND TECHNOLOGY.

Basic research innovations have contributed significantly to our nation's economic and national security. DOD relies on technological innovation as a force multiplier, and cutting-edge advances have helped make our military the best-equipped and most effective in the world. Addressing complex military challenges requires innovation and new technologies. The new knowledge needed to develop such technologies depends on sustained investments in scientific and engineering basic research performed at U.S. universities. Consistent with *Innovation: An American Imperative*, investment in 6.1 basic research should grow at least four percent plus inflation annually to maintain our country's status as the leader in defense research and technology. Similarly, federal investments in 6.2 applied research and 6.3 advanced technology development should continue to a priority to help ensure basic research discoveries can be built on for potential technology applications.

CONTINUE TO PROVIDE STRONG SUPPORT FOR THE MINERVA INITIATIVE WITHIN THE DEPARTMENT OF DEFENSE.

The Minerva Initiative enables DOD to draw on social science research and researchers to better understand and respond to new global security threats. Minerva supports social science research in areas of critical importance to U.S. national security through interdisciplinary and cross-institutional projects and programs.

DEPARTMENT OF EDUCATION

C CONTINUE TO INVEST IN STUDENT FINANCIAL AID PROGRAMS THAT SUPPORT LOW- AND MIDDLE-INCOME STUDENTS.

- Restore the year-round Pell Grant to help low-income students attend college and reduce their time to degree.
- Support Supplemental Educational Opportunity Grants (SEOG) and Federal Work Study (FWS), campus-based aid programs that require institutions to match the federal government's investment. These programs represent a fruitful partnership and shared obligation between the federal government and colleges and universities.
- Support tax provisions described in "[Tax Policies](#)."

S STRENGTHEN LOAN CONSOLIDATION, REPAYMENT, AND FORGIVENESS OPTIONS, AS WELL AS DEFERMENTS AND FORBEARANCES.

State governments should devote greater financial and other resources to higher education to minimize tuition increases. Institutions have an important role to play as well, by offering substantial financial aid to needy students, being continually aggressive in pursuing cost-saving strategies, and employing technology, when appropriate, to provide high quality, affordable higher education. The federal government has a role in preventing students and families from over-borrowing and better managing and avoiding debt. We are also concerned about the erosion of benefits for graduate and professional students. We support reforms to the interest rates and other terms of the federal student loans available to these students.

C CONTINUE TO ENCOURAGE REGIONAL ACCREDITORS TO DEVELOP DIFFERENTIATED REVIEW PROCESSES.

All higher education institutions accredited by a federally-recognized regional accrediting agency should meet the same accreditation standards but need not go through the same processes or provide the same amount of information to do so. Accreditation should use risk-based analysis for assessing the differential processes institutions undergo for reaffirmation of accreditation. Risk-based analysis would be linked to academic and financial performance.

The alternative review process for reaffirmation of accreditation should focus on the amount and type of review an institution is required to undergo for reaffirmation of accreditation based on the institution's performance on key indicators.

REVIEW THE REGULATORY COMPLEXITIES OF ADMINISTERING FEDERAL STUDENT FINANCIAL AID, INCLUDING THE APPLICATION AND DELIVERY PROCESSES.

To simplify federal student aid and ease the burden on students and their families, while reducing the regulatory burden on institutions of higher education, the Department of Education should enact the recommendations of the [Task Force on Federal Regulation of Higher Education](#), led by Vanderbilt University Chancellor Nick Zeppos and then-Chancellor Brit Kirwan of the University of Maryland System.

INCREASE INVESTMENTS IN THE DEPARTMENT OF EDUCATION'S TITLE VI INTERNATIONAL AND FOREIGN LANGUAGE EDUCATION PROGRAMS.

These are the federal government's most comprehensive programs for developing national capacity in international and foreign language education. Title VI programs support instruction in less-commonly taught languages—particularly from regions of national strategic importance—and research on issues of importance to our national security. These programs educate the individuals whose abilities help ensure the successful international engagement of the U.S. education, government, and business sectors. Increased funding will provide the resources to restore the operating capacity of these critical programs to continue to contribute effectively to our nation's long-term security, global leadership, and economic competitiveness.

SUPPORT THE DEPARTMENT OF EDUCATION'S INSTITUTE OF EDUCATION SCIENCES (IES), WHICH INVESTS IN RESEARCH IN TEACHING PEDAGOGIES AND STUDENT OUTCOMES.

IES has transformed the quality and rigor of Department of Education research and increased the demand for science-based evidence of effectiveness in education. Strong funding support of the primary federal agency charged with supporting research for education practice and policy will continue to improve our understanding of how students learn and what makes an effective teacher.

IMPROVE THE OFFICE FOR CIVIL RIGHTS OPERATIONS AND PROCEDURES.¹

The most important safety issue facing universities today is how to better prevent and effectively respond to sexual assaults on college campuses. Regrettably, sexual assault and sexual misconduct are a widespread societal problem; effectively addressing the problem requires a sustained effort on numerous fronts. The higher education community must continue to work with the Department of Education to address campus sexual assault, including improving the Office for Civil Rights (OCR):

- OCR should be required to resolve investigations within 24 months.
- OCR should be required to share allegations with schools.

¹ Also, noted in "[Regulatory Reform](#)"

- Institutions under investigation should not be required to sign voluntary resolution agreements without first having the opportunity to question or contest the findings if the school deems it appropriate.
- Institutions should be able to appeal to and communicate directly with the central OCR rather than interacting only with investigators on campus.
- OCR should be required to vet any rulemaking, major guidance, or dear colleague letters with the Department's Office of the General Counsel before issuance.
- Any Title IX rules proposed by OCR that impose new obligations or legal requirements on the public should be deemed substantive rules that are subject to the Administrative Procedures Act notice and comment process.

DEPARTMENT OF ENERGY

SUPPORT CORE FUNDAMENTAL RESEARCH SPONSORED BY THE DOE OFFICE OF SCIENCE.

The DOE Office of Science is critical to advancing U.S. science and energy frontiers. Led by the Office of Science, DOE is the leading source of federal investment in basic physical scientific research, providing nearly 47 percent of total federal support in this area. In scientific fields, such as high-energy and nuclear physics, nuclear medicine, heavy-element chemistry, plasma physics, and magnetic fusion, DOE is the primary government sponsor. In addition to the physical sciences, the DOE Office of Science plays a central role in ensuring continued U.S. leadership in other fields of scientific research, including the biological sciences, advanced scientific computing, and engineering. The Office of Science also supports the very successful Energy Frontier Research Centers program. This initiative has helped to forge new partnerships among universities, national laboratories, nonprofit organizations, and for-profit firms, bringing together the talents and expertise of leading scientists in a setting designed to accelerate research toward meeting our critical energy needs and challenges. The new Administration should sustain the important research of DOE's Office of Science by providing it with at least four percent annual real growth in funding.

SUPPORT THE HIGH-RISK, HIGH-REWARD RESEARCH SPONSORED BY THE ADVANCED RESEARCH PROJECTS AGENCY - ENERGY

Modeled after the Defense Department's DARPA, ARPA-E supports high-risk, high-reward research that private industry will not conduct. Despite the reasonable odds and potential for a huge payoff, the private sector does not invest sufficiently in this kind of "high-risk, high-reward" energy research. Federal support for ARPA-E is a sound investment that enables the development of game-changing ideas that result in market-creating, job-growing businesses. Since first receiving federal appropriations in 2009, ARPA-E has funded more than 450 projects; 45 percent of these awards have been made to universities and another significant portion has supported research at university-based startups. By 2015, 34 ARPA-E funded projects had attracted more than \$850 million in private sector follow-on funding based on a federal investment of about \$135 million.

SUPPORT A BALANCED PORTFOLIO OF INVESTMENTS IN APPLIED ENERGY RESEARCH ACTIVITIES

No single energy solution will ensure the future energy security of the United States. To provide the nation a broad-based set of alternative energy options, we encourage the new administration to support a balanced array of applied energy research efforts. These should focus on areas including fossil, nuclear, energy storage and grid modernization, as well as research to help advance other renewable energy sources, including solar, wind and geothermal energy.

E ESTABLISH REGIONAL UNIVERSITY-BASED APPLIED ENERGY RESEARCH CENTERS

We encourage DOE to build upon the success of the Energy Frontier Research Centers by creating a new regional university-based applied energy research centers program. The purpose of the centers should be to find innovative solutions to state and regional energy challenges. These centers should work closely with the local energy industry, state and local governments, and other regional stakeholders to assess technological viability, environmental desirability, and market feasibility of new energy technologies. They should specifically consider the regional economic and geographic characteristics that might play a role in the potential success of a new technology.

NATIONAL INSTITUTES OF HEALTH

SUPPORT NIH AS THE WORLD’S LEADER IN BIOMEDICAL RESEARCH.

NIH-generated breakthroughs have led to decreases in mortality rates for heart disease, cancer and other chronic diseases. Research supported by NIH has led to new diagnostic methods such as cancer illuminating goggles and treatments such as medicines, nerve regeneration and bionic organs. The NIH funded the Human Genome Project, one of the most important research endeavors of our time. In addition, advances made possible through NIH grants have resulted in research jobs, economic growth, increased productivity and decreased disease burden in the United States. To sustain the vital role the NIH plays in helping to cure disease and improve U.S. public health, the new Administration should provide NIH with at least four percent annual real funding growth.

ENSURE ABILITY OF U.S. SCIENTISTS TO MAINTAIN USE OF LONG-PROVEN RESEARCH METHODS.

Federally-supported scientists should be permitted to continue to access and utilize cutting-edge methods and technologies, such as CRISPR, to maintain American innovation and ensure that we can compete globally.

IMPLEMENT FUNDING AND REGULATORY REFORM MEASURES CONTAINED IN THE 21ST CENTURY CURES ACT.

The surge funding provided by the 21st Century Cures Act will support advances in brain, cancer and genomic research – areas ripe for rapid treatment advances. The newly established Research Policy Board called for in the Cures Act will align and streamline paperwork requirements to allow researchers to spend more time in the lab and less time filling out forms.

CONTINUE TO SUPPORT NEW AND INNOVATIVE PROGRAMS TO HELP TRAIN THE FUTURE BIOMEDICAL WORKFORCE AND ENSURE THE FUTURE HEALTH OF THE U.S. BIOMEDICAL ENTERPRISE.

Programs such as the “Broadening Experiences in Scientific Training” program can help give our workforce the technical skills and broad training required for the U.S. to stay at the forefront of biomedical research.

DEPARTMENT OF HOMELAND SECURITY

ENCOURAGE INTERNATIONAL STUDENTS, SCIENTISTS, AND SCHOLARS TO COME TO U.S. COLLEGES AND UNIVERSITIES AND PROVIDE THEM WITH A CLEAR PATH WHERE APPROPRIATE TO EMPLOYMENT AND PERMANENT RESIDENCY.

One of the great strengths of American colleges and universities is the presence of the best and brightest international students, scientists, and scholars. Their contributions go beyond the classroom and laboratories and extend into start-up companies, manufacturing, and businesses that create jobs and economic growth.

To further strengthen U.S. higher education, advance our leadership position in the world through education and research, and build greater geopolitical and cultural understanding, we recommend:

- The federal government should create clear pathways to permanent residency and U.S. citizenship for talented international students who earn U.S. academic degrees, as well as for outstanding international scientists, engineers, and scholars teaching and conducting research in the U.S.
- The Department of Homeland Security (DHS) should reaffirm its commitment to the timely and efficient processing of visas for international students and scholars, so that the time for processing generally does not exceed two weeks.
- DHS should reconsider an earlier policy decision that prohibits international students, scholars, scientists, and engineers from renewing their visas in the U.S.

MAINTEIN THE DEFERRED ACTION OF CHILDHOOD ARRIVALS (DACA) PROGRAM.

The federal government should maintain the DACA program to allow time for Congress to enact a permanent solution that ensures a humanitarian approach to thousands of students who were brought to this nation by their families as children and want to contribute to the only country they have ever known.

DEPARTMENT OF STATE

THE STATE DEPARTMENT SHOULD STRENGTHEN ITS ACADEMIC AND CULTURAL EXCHANGE PROGRAMS.

International exchange programs serve our nation’s “soft diplomacy.” They help U.S. students and scholars better understand other nations and peoples, while enabling international students and scholars to better understand the U.S. and its citizens. These academic and cultural exchanges also create the foundation for long-lasting relationships and collaborations that can lead to new knowledge, economic development, and improved conflict resolution.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MAINTAIN A CONTINUITY OF VISION FOR THE NATION'S SPACE PROGRAM.

It is important for the new administration and the 115th Congress to work with the National Academies, NASA Advisory Councils, industry and academia to develop and maintain a strategic vision for the world's premiere space agency and the nation's space program, which includes science, aeronautics, space technology, and exploration. The National Research Council's report, "[Pathways to Exploration: Rationales and Approaches for a U.S. Program of Human Space Exploration](#)" underscores the importance of a sustained, long-term vision for human exploration and the need to have a continuity of vision that does not change with an incoming presidential administration. To sustain this vision, NASA should be provided with annual funding growth of at least four percent.

MAINTAIN A BALANCED NASA PORTFOLIO TO ENSURE NASA'S LONG-TERM SUCCESS AND GLOBAL LEADERSHIP.

NASA's success depends on maintaining an appropriate balance among the mission directorates – science, aeronautics, exploration and space technology. Per NASA's mission statement, "It is NASA's mission to: advance the human and robotic exploration, use and development of space; advance and communicate scientific knowledge and understanding of the Earth, the solar system, and the universe; and research, develop, verify, and transfer advanced aeronautics and space technologies." To achieve these goals, NASA must provide consistent and sustainable support for all the directorates and continue to follow the recommendations made in the National Academies Decadal Surveys.

RENEW NASA'S ABILITY TO INSPIRE AND TRAIN THE NEXT GENERATION OF SCIENTISTS AND ENGINEERS BY SUPPORTING UNIVERSITY-BASED PROGRAMS.

Increase NASA's funding for university education and research programs such as the Space Grant Program.

NATIONAL SCIENCE FOUNDATION

REAFFIRM THE UNIQUE ROLE PLAYED BY THE NSF IN AMERICA'S SCIENTIFIC AND RESEARCH ENTERPRISE AND IN SUPPORTING STEM EDUCATION.

The NSF is the only federal agency with the responsibility of supporting fundamental research and STEM education across all areas of science and engineering. The agency has been central to supporting research at U.S. universities and to the training of student at all levels. It performs its duties with a very low overhead rate, with only five percent of the agency's budget devoted to staffing and administration. The rest of its funds are awarded on a competitive basis and to support research, much of which is performed at U.S. universities. NSF's critical work needs to be fortified and should be supported with at least four percent annual real growth in funding by the new Administration.

FUND NEW PROGRAMS AND INITIATIVES CONTAINED IN THE AMERICAN INNOVATION AND COMPETITIVENESS ACT.

Before adjourning, the 114th Congress passed the American Innovation and Competitiveness Act, important legislation that authorized the creation of new NSF grants programs aimed at enhancing STEM education and training, broadening participation in science, that support entrepreneurship and quick transition of ideas from the laboratory to the marketplace. We encourage the new administration to see that these NSF programs receive adequate funding without diverting resources from other important existing NSF programs.

PROVIDE FEDERAL FUNDING TO HELP REALIZE THE "10 BIG IDEAS FOR FUTURE NSF INVESTMENTS."

The NSF leadership has developed "[10 Big Ideas for Future NSF Investments](#)." These ideas "capitalize on what NSF does best: catalyze interest and investment in fundamental research, which is the basis of discovery, invention and innovation." These initiatives are meant to be forward-thinking and set the stage for future investments in long-term scientific research. Under the new administration, NSF should continue to develop these ideas and request federal funding for them in the FY2018 and FY2019 budgets.

CONTINUE TO SUPPORT SOCIAL AND BEHAVIORAL SCIENTIFIC RESEARCH.

The NSF is a critical sponsor of research in social and behavioral sciences. These disciplines provide key insights into complex societal problems and, along with research in the biological and physical sciences, provide a multidimensional view of both the root causes and potential solutions to these problems.

CONTINUE TO SUPPORT NSF GEOSCIENCES RESEARCH.

NSF is a critical sponsor of research in the geosciences. Basic research in the geosciences provides valuable understanding of the environment and the role the atmosphere and oceans play in the planetary water cycle, ocean acidification, and the global environment. Due to this research, we have better understanding of, and ability to predict, natural occurrences such as earthquakes, tornados, hurricanes, and droughts. NSF's Geosciences Directorate is also the primary U.S. supporter of the research being conducted in the polar regions.