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Introduction

This edition of the Tufts Washington Update for early October for funding opportunities, appropriations, congressional, administration, and agency updates. Faculty, staff, and researchers are welcome to schedule calls with the Lewis-Burke Tufts team or meet with the team when they visit Washington, DC. Contact Amanda Bruno, Lewis-Burke Associates LLC, at amanda@lewis-burke.com with any questions or comments related to the Update's content, for more information on updates and opportunities, or to add a new recipient to the distribution list.

Appropriations Updates

Senate Appropriations Committee Approves FY 2020 Commerce, Justice, Science Appropriations Bill

On September 26, the Senate Appropriations Committee approved its fiscal year (FY) 2020 Commerce, Justice, Science, and Related Agencies (CJS) appropriations bill by a unanimous vote of 31-0. The bill would provide a total of $70.8 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 $6.7 billion above the FY 2019 enacted amount and $3.1 billion below the House bill. Notably, additional census funding accounts for more than half of the proposed increases to CJS bill.
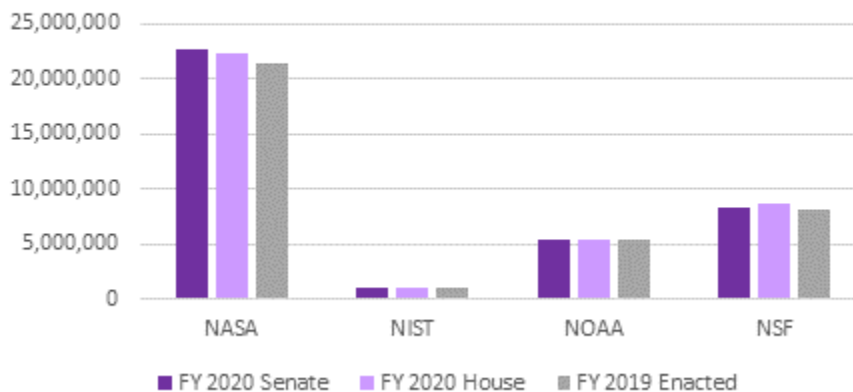
As part of its consideration of the bill, the Senate Appropriations Committee released its report containing more details and direction to the agencies on CJS programs. As with the House version, the Senate bill would largely ignore many of the spending cuts proposed in the Administration's budget request, including Science, Technology, Engineering, and Mathematics (STEM), minority-serving, and scientific research programs at NSF, NASA, and NOAA. 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. Subcommittee Chairman Jerry Moran (R-KS) expressed excitement that the EDA's Regional Innovation Program would receive its "largest year-over-year increase in the program's history." 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 funding for continued efforts to combat the opioid crisis. The 13 amendments included in the manager's package enjoyed bipartisan support, including one that would urge the Office of Science and Technology Policy (OSTP) to work with NISF and NIST to "assess the utilization of semiconductor-specific and semiconductor-related fields in both basic and applied research." The bipartisan nature of the proceedings stood in stark

contrast to the House bill, which advanced entirely along party lines after a markup that featured protracted debate over the possible inclusion of immigration and gun control policy riders.

The Senate bill would provide the following funding levels:
- **NSF** would be funded at **$8.3 billion** in the Senate CJS bill, $242 million (3.0 percent) above the FY 2019 level and $1.3 billion above the President's requested level, but $319.14 million below the House version. Research and Related Activities, Education and Human Resources, and would grow by 3.8 percent and 3.0 percent, respectively, while Major Research Equipment and Facilities Construction would decrease by 14.4 percent compared to the FY 2019 enacted level.
- **NASA** would be funded at **$22.8 billion**, an increase of $1.3 billion (5.8 percent) above the FY 2019 enacted level, $134 million above the President's request, and $435 million above the House version. Within this amount, the Science Mission Directorate would receive $6.9 billion, flat relative to FY 2019.
- **NOAA** would receive **$5.3 billion**, $87.3 million (1.6 percent) below the FY 2019 enacted level and $141 million below 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. Additionally, Oceanic and Atmospheric Research would receive $531 million.
- **NIST** would be funded at **$1.04 billion**, an increase of $52.5 million (5.3 percent) compared to the FY 2019 enacted level, but $2.2 million below the House bill. Core research activities would be funded at $753.5 million, $29 million above FY 2019. The Manufacturing Extension Partnership and the Manufacturing USA programs would be funded at $145.5 million and $16 million, respectively, both modest increases from FY 2019.
- **EDA** would receive **$319.5 million**, which is about $15.5 million (5.1 percent) above the FY 2019 enacted level, but $220 million below the House bill. Notably, the bill would provide a robust increase of $7.5 million or 31.9 percent for the popular Regional Innovation Program. For the second consecutive year, the Senate rejected the President's budget proposed elimination of the agency outright.
- **DOJ** would receive **$32.5 billion**, a $1.5 billion (4.9 percent) increase above the FY 2019 enacted level and $446.3 million above the House bill. The bill would prioritize research in the areas of preventing domestic radicalization, school safety, and human trafficking.

Sources and Additional Information:
- The committee report is available at https://www.appropriations.senate.gov/imo/media/doc/FY2020%20CJS%20Appropriations%20Act,%20Report%20116-127.pdf.
- The webcast of the full committee markup is available at https://www.appropriations.senate.gov/hearings/full-committee-markup-of-fy2020-interior-cjs-homeland-and-leg-branch-bills.

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Senate Appropriations Committee Approves FY 2020 Interior and Environment Appropriations Bill

On September 26, the U.S. Senate Appropriations Committee unanimously approved the fiscal year (FY) 2020 Interior, Environment, and Related Agencies Appropriations bill, which provides funding for the Environmental Protection Agency (EPA), the U.S. Geological Survey (USGS), and the National Endowments for the Arts (NEA) and Humanities (NEH), among other agencies. Overall, the Senate bill totals $35.8 billion, which would be $200 million more than the FY 2019 allocation but $1.5 billion less than the House FY 2020 Interior-Environment bill.

The Senate is unlikely to consider this bill on the floor, but it will serve as a negotiating base with the House on a final Interior-Environment funding package. While FY 2020 has begun, all federal agencies, including those within this bill, are continuing to operate at FY 2019 levels as Congress has not yet passed any FY 2020 spending bills. The House and Senate Appropriations Committees are currently determining top-level allocations for each of the 12 appropriations bills with hopes of having final spending packages passed by November 21.

High-level funding figures specified in the Senate bill include the following:
- **USGS** would be funded at $1.210 billion, $76 million (6.5 percent) above the FY 2019 enacted level, and $27 million (2.2 percent) below the House allocation and $226 million (23 percent) above the budget request;
- **EPA** would be funded at $9.01 billion, an increase of $952.4 million over the FY 2019 level and $2.79 billion above the request, but $510.8 million below the House mark. The Science and Technology account would see a small increase of $6.8 million or one percent over the prior year; and
- **NEH** and **NEA** would be funded at $157 million each, a $2 million increase (1.3 percent) over FY 2019 enacted levels, but below the House proposed allocation of $167.5 million for each agency.

Additional details on specific programs in the Senate Interior-Environment bill and funding charts are included in the attached analysis.

Sources and Additional Information:

- The Senate FY 2020 Interior and Environment Appropriations bill, and a Majority press release with selected details can be found at https://www.appropriations.senate.gov/news/fy2020-interior-environment-appropriations-bill-approved-by-full-committee.
- The text of the FY 2020 Interior and Environment Appropriations bill can be found at https://www.appropriations.senate.gov/imo/media/doc/FY2020 Interior Environment Appropriations Act, S.2580.pdf.
- The accompanying report is available at https://www.appropriations.senate.gov/imo/media/doc/FY2020%20Interior%20Environment%20Appropriations%20Act,%20Report%20116-123.pdf.

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Senate Appropriations Committee Approves FY 2020 Agriculture Appropriations Bill

On September 19, the Senate Appropriations Committee unanimously approved the fiscal year (FY) 2020 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations

bill, which funds the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA). The bill would provide a total of $23.1 billion in discretionary funding, which is $1.2 billion less than the House version.

The Agricultural Research Service (ARS) Salaries and Expenses account would receive $1.42 billion and Building and Facilities would receive $305.8 million for a total of $1.72 billion. This would be an increase of $45.3 million compared to the FY 19 enacted level, and a $335.3 million increase compared to the House proposed level of $1.39 billion. Consistent with previous years, the Committee rejects the president's proposed termination of ARS laboratories and facilities and directed that extramural research programs be funded at "no less than the FY 19 enacted level."

The new National Bio and Agro-Defense Facility (NBAF), which is nearing completion, would receive $41.1 million to support the continued transfer from the Department of Homeland Security (DHS) jurisdiction. The Committee would provide flat funding for popular programs like Genomes to Fields, while providing an increase of $1 million for the human nutrition research program, which had been proposed for a 50% reduction in the budget request. Additionally, $2 million in new funding would be directed to the Center for Pollinator Heath to foster better collaboration for a "federal voice" and working with land grant university partners.

Within the increase provided for ARS, there are several emerging topics of interest that would receive increase funding:

- $3 million for a pilot Aquaculture Experiment Station in partnership with universities on coldwater and warmwater production;
- $1 million to conduct a national blueberry breeding research program;
- Cotton Blue Disease research would receive $5 million for ARS to coordinate with other agencies and academic research partners;
- Hemp research would receive $2.5 million for "regionally-driven" development and stakeholder engagement;
- $2 million for a Food Systems Center at a land-grant institution;
- $7 million for new predictive modeling tools for crop diseases.

The National Institute of Food and Agriculture (NIFA) would receive $1.48 billion, an increase of $13 million compared to the FY 2019 enacted level, but $109.7 million less than the House bill. The Senate Committee would provide $9.5 million to NIFA for relocation costs to the Kansas City area, unlike the House bill that included report language prohibiting the use of funds for the relocation. The bicameral discrepancy in support for the Agency's relocation will be a contentious issue to be resolved during conference on a final bill.

Unfortunately, the Senate failed to provide funding for the new Agriculture Advanced Research and Development Authority (AGARDA), that was authorized in the 2018 Farm Bill. Flat funding is provided for the Capacity Building for Non-Land Grant Colleges of Agriculture at $5 million. Additionally, the Senate would prove $4 million for Rural Health and Safety Education programs focused on "educating nurses and allied health professionals in opioid abuse and prevention" with $1 million of that funding targeted for telehealth, telemedicine, distance learning, and virtual experiences for opioid education in minority rural communities."

The Agriculture and Food Research Initiative (AFRI) would receive $425 million, an increase of $10 million compared to the FY 2019 enacted level of $415 million, but less than the House proposed level of $445 million and the president's budget request of $500 million.

Several notable pieces of report language were included:

- The Committee encourages the development of agricultural robots;
- The Senate directs NIFA to consider developing community-wide urban agriculture projects that address food deserts across the country;
- Support for the continuation for the interagency grants program with National Institute of Child Health and Human Development for dual use/dual benefit research in biomedicine and agriculture;
- The Committee directs NIFA to increase food safety research and defense technology, as well as food-borne illnesses: "novel bio detection technologies and the implementation of bio detection platforms in real-world conditions" and to designate, in coordination with the FDA, a "Center of Excellence for Foodborne Illness" to reduce risk of listeria; and
- The Senate report supports the creation of a "Beta" model for multi-trophic aquaculture research.

Sources and Additional Information:

- The Senate Agriculture, FDA, and Related Agencies bill for FY 2020 is available at https://www.appropriations.senate.gov/imo/media/doc/FY2020%20Agriculture%20Appropriations%20Act,%20Report%20116-110.pdf.

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Congressional and Administration Updates

Senate Education Committee Chairman Introduces Student Aid Improvement Act of 2019
On September 26, U.S. Senate Health, Education, Labor and Pensions (HELP) Committee Chairman Lamar Alexander (R-TN) introduced S. 2557, the *Student Aid Improvement Act of 2019*. The bill was introduced in response to legislation that sought to extend expiring funding for minority-serving institutions (MSI), which had previously passed the U.S. House of Representatives. Senator Alexander's legislation is largely based on bipartisan bills primarily addressing the Pell Grant program and the Free Application for Federal Student Aid (FAFSA). Senator Alexander's efforts can be seen as an effort to jumpstart *Higher Education Act* (HEA) reauthorization negotiations with his Democratic counterpart, HELP Committee Ranking Member Patty Murray (D-WA). Those negotiations have stalled over policy disagreements related to campus safety and Senator Murray's insistence on a comprehensive reauthorization of HEA. Because the legislation is not a comprehensive reauthorization, it is unlikely to gain support from Senate Democrats.

Senator Alexander has also indicated interest in incorporating additional legislation, including the *College Transparency Act,* which would create a student unit record system that would include programmatic-level outcomes for programs of study at institutions of higher education.

It is also expected that U.S. House Education and Labor Committee Chairman Bobby Scott (D-VA) will introduce a comprehensive HEA reauthorization bill largely based on his *Aim Higher* legislation from the

115th Congress, which will likely only receive support from House Democrats. Given the move toward partisan HEA bills in both chambers, a reauthorization of HEA during this current Congress is unlikely at this time.

Below is an overview of the *Student Aid Improvement Act of 2019:*

MSI Funding
The bill would provide mandatory funding for programs that support minority-serving institutions including Hispanic-serving institutions (HSI) and Asian American and Native American Pacific Islander-serving institutions (AANAPISI), known as the Title III, Part F programs. This funding expired at the end of fiscal year 2019 and the bill would extend permanent mandatory funding for these grant programs.

Pell Grant Program
A significant part of the legislation is devoted to the Pell Grant program. One proposal would make it possible to auto-qualify students for maximum Pell Grants if they meet certain criteria such as qualifying for certain means-tested benefits. Building on both congressional and Trump Administration support, the bill would make individuals who are confined or incarcerated eligible for Pell Grants for approved prison education programs. Additionally, the bill would make short-term certificate programs that include a minimum of 150 hours of instruction eligible for Pell Grants. Unlike previous congressional proposals, the *Student Aid Improvement Act* does not have a limitation on Pell Grant access to short-term programs at for-profit institutions. These programs would have to align with high-skill, high-wage, or in-demand industry sectors or occupations.

FAFSA and Award Letters
A long-sought priority for Chairman Alexander, the bill would reduce the number of applicant questions included on the FAFSA and allow for the transmittal of information between the Internal Revenue Service and the Department of Education (ED). The Secretary of Education would be required to consult with state entities regarding additional data needs of state-based financial aid programs. The bill would also require ED to develop "early awareness" notification of the availability of federal financial aid aimed at low-income and first-generation students at middle and high school-levels and their families.

Additionally, the bill would require ED, in consultation with stakeholders, to "develop standard terminology and a standard format for financial aid offers," which would be subject to a period of consumer testing. Institutions would be required to implement the final version of the Department's standardized award offer letter no later than the 2023-2024 award year.

Sources and Additional Information:

- Chairman Alexander's press release on the *Student Aid Improvement Act* is available at https://www.alexander.senate.gov/public/index.cfm/pressreleases?ID=958E80DD-EC01-4473-B029-207BC395A513.
- *The Student Aid Improvement Act* bill text is viewable at https://www.help.senate.gov/imo/media/doc/ROM19662.pdf.

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Department of Labor Releases Final Rule on Overtime Pay

The Department of Labor (DOL) released its final rule updating the existing overtime pay regulations covered under the *Fair Labor Standards Act* (FLSA). The final rule, which is effective as of January 1, 2020, would set a new salary threshold for salaried executive, administrative, and professional employees to qualify for exemption from overtime pay requirements and includes some changes from the Trump Administration's March 2019 proposed rule. In the final rule, the salary threshold for overtime pay will be increased from the current level from $455 per week ($23,660 per year) to $684 per week ($35,568 per year), the approximate equivalent to the 20th percentile of earnings of full-time salaried workers in the lowest-wage census region and/or the national retail industry. Non-exempt workers earning less than the $684 per week would be required to be paid time-and-a-half for working any hours over 40 hours per week. DOL notes in the announcement the agency "intends to update these thresholds more regularly in the future."

This latest rule follows on several years of back and forth rulemaking and litigation. In 2016, the Obama Administration published a final overtime rule, including a $47,476 salary threshold along with prescribed automatic increases to the threshold. Just prior to being implemented in late 2016, that rule was enjoined by the U.S. District Court, preventing the changes from going into effect and resetting the federal regulations to the 2004 standard. The Trump Administration final rule sets a lower salary threshold than the 2016 Obama-era rule and does not prescribe an automatic adjustment to the salary threshold.

Other changes in this final rule include the allowance of nondiscretionary bonuses or incentive payments to count toward up to ten percent of a salary level. The final rule also would increase the salary threshold for those exempt due to being "highly compensated employees," increasing from the current $100,000 annual level to a $107,432 yearly salary, equivalent to the pay level of the 80th percentile of full-time salaried workers. The final rule also sets special salary thresholds for U.S. territories. There are no changes to the current job duties test, which determines whether classes of employees, such as managers or learned professionals, are exempt from the requirement.

While DOL has released the final rule on the agency website, the rule has not yet been published officially in the Federal Register. It is expected to be published soon with no substantive changes.

Sources and Additional Information:

- The Department of Labor website outlining the 2019 final overtime rule and related materials are available at https://www.dol.gov/whd/overtime2019/index.htm.
- The text of the final rule is viewable at https://www.dol.gov/whd/overtime2019/overtime_FR.pdf.

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Agency Updates

National Science Foundation Releases Dear Colleague Letter Outlining Final Changes to the Social, Behavioral, and Economic Sciences Programs

On September 26, the Social, Behavioral, and Economic Sciences (SBE) Directorate at the National Science Foundation (NSF) released a Dear Colleague Letter (DCL), detailing changes to longstanding programs in the Directorate and the creation of new initiatives to support social and behavioral sciences research in emerging SBE priorities. This overhaul has been a priority for SBE Assistant Director Dr. Arthur "Skip" Lupia since taking over the Directorate in September 2018. Dr. Lupia hopes the changes will improve external support for the social and behavioral sciences portfolio at NSF. In addition to the DCL, SBE has announced several opportunities for researchers to learn more about the proposed changes through webinars and virtual office hours.

As the DCL notes, these changes do not affect current SBE solicitations and submission deadlines. All changes will begin to take effect with solicitation and program submission deadlines occurring after January 1, 2020.

Programmatic Changes
Most programmatic changes outlined in the DCL are updates to longstanding initiatives at SBE. The extent to which programs have changed vary from largely in-name-only changes to significant shifts in research foci. The repositioned programs include:

Human Networks and Data Science (HNDS)
This program supports the use of "large and multifaceted data to examine an expansive and fast-evolving set of complex human networks and systems," particularly in the areas of health, prosperity, and security. HNDS incorporates research thrusts related to both data science and human networks from programs such as Resource Implementations for Data Intensive Research in the Social, Behavioral, and Economic Sciences (RIDIR), which has recently been archived on the NSF website. Funding will be provided through two tracks – infrastructure (HNDS-I) and core research (HNDS-R).

Linguistics
This longstanding SBE program would be largely unchanged and continue to serve as NSF's main initiative for the study of language. However, it will be expanded to include program elements and management from NSF and National Endowment for the Humanities' (NEH) Documenting Endangered Languages, which has been a stand-alone program at SBE. Despite this expansion, research focusing on endangered communities will still have a unique home at the Directorate through the rebranded NSF Dynamic Language Infrastructure - NEH Documenting Endangered Languages (DLI-DEL) program.

Science of Learning and Augmented Intelligence (SL)
Building on the longstanding Science of Learning program and the expired Science of Learning Centers, The new SL program will include additional focus on "augmented intelligence," or research on how learning and cognition can be impacted by technology, as well as more general basic research on "how alterations to human contexts and relationships can bolster human intelligence, performance, and productivity."

Security and Preparedness (SAP) and Accountable Institutions and Behavior (AIB)

These two programs will cover research topics that have been included in the longstanding Political Science program previously.

- Security and Preparedness (SAP) consolidates several funding sources from across the Directorate focused on global and national security issues, including research pertaining to "international relations, global and national security, human security, political violence, state stability, conflict processes, regime transition, international and comparative political economy, and peace science."
- Accountable Institutions and Behavior (AIB) addresses "issues broadly related to attitudes, behavior, and institutions connected to public policy and the provision of public services," including "the study of individual and group decision-making, political institutions (appointed or elected), attitude and preference formation and expression, electoral processes and voting, public administration, and public policy."

Law & Science (LS)
The new LS program is an evolution of the longstanding "Law and Social Sciences" initiative at SBE. Like its predecessor, LS will still support research on behavior and law and legal institutions/processes, but its purview has expanded to accept research related to "relationships between law and all areas of science, including interactions with biological, computer and information sciences, STEM education, engineering, geosciences, and mathematical and physical sciences," including cyberspace, forensic sciences, and biotechnology regulations.

Science of Science: Discovery, Communication, and Impact (SoS:DCI)
SoS:DCI builds on the former Science of Science and Innovation Policy Program. SoS:DCI will support basic research to improve the pipeline from scientific discovery to communicating findings, ultimately sharing the impacts of scientific investment and research to society. The program will also support external partnerships, including industry outreach projects and conferences.

Ethical and Responsible Research (ER2)
ER2 derives from the former Cultivating Cultures for Ethical STEM Program and supports research projects that "identify factors that are effective in the formation of ethical STEM researchers and approaches to developing those factors in all STEM fields that NSF supports." Proposals from minority-serving institutions, women's colleges, and organizations primarily serving persons with disabilities are strongly encouraged. Certain proposals including international partners are also encouraged, but the partners should obtain complementary funding from other sources if possible.

Science and Technology Studies (STS)
Science, Technology, and Society Program has been renamed as Science and Technology Studies (STS). The program description for STS maintains the original program's interest in "supporting research that uses historical, philosophical, and social scientific methods to investigate the intellectual, material, and social facets of the STEM disciplines."

Resources
To help researchers navigate these changes, SBE Assistant Director Dr. Skip Lupia will host virtual office hours to give abridged overviews of the changes to SBE and provide time to answer questions from participants. Virtual office hours will be held **October 15 at 2 PM EDT and October 25 at 2 PM and 4 PM EDT.** Links to register for the webinars and virtual office hours are provided in the official NSF news release linked below.

Sources and Additional Information:

- The news release from NSF SBE on the changes with links t virtual office hours can be found at https://www.nsf.gov/news/news_summ.jsp?cntn_id=299267&org=SBE&from=news.
- The DCL can be found at https://www.nsf.gov/pubs/2019/nsf19089/nsf19089.jsp?org=NSF.
- More information on the SBE Human Networks and Data Science program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505702&org=NSF&sel_org=NSF&from=fund.
- More information on the SBE Linguistics program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5408.
- More information on the NSF Dynamic Language Infrastructure- NEH Documenting Endangered Languages program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5408.
- More information on the Science of Learning and Augmented Intelligence program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5408/.
- More information on the Security and Preparedness program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5408.
- More information on the Accountable Institutions and Behavior program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5408.
- More information on the Law & Science program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505704.
- More information on the Science of Science: Discovery, Communication, and Impact program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505730.
- More information on the Ethical and Responsible Research program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505693.
- More information on the Science and Technology Studies program can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505697.

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National Science Foundation Announces Science of Learning and Augmented Intelligence Program

The National Science Foundation's (NSF) Social, Behavioral, and Economic Sciences Directorate (SBE) recently announced the launch of a new Science of Learning and Augmented Intelligence Program (SL). As Lewis-Burke previously reported, SBE has been reorganizing several programs and launching new initiatives aimed at improving external support for the social and behavioral sciences portfolio. The new SL program aims to build off of research goals of SBE's longstanding Science of Learning program and expired Science of Learning Centers to include additional focus on "augmented intelligence," or research on how learning and cognition can be impacted by technology.

The program description for the new SL calls for research in two thrusts. One concentration echoes the old Science of Learning program's call for research addressing learning "across a wide range of domains at one or more levels of analysis including: molecular/cellular mechanisms; brain systems; cognitive, affective, and behavioral processes; and social/cultural influences." This aspect of the program is joined by a call for research on how augmented intelligence, the use of artificial intelligence technologies, and interactions with others can improve human approaches to learning and related processes, including research on improving collaborative technologies to better adapt to humans. The program notes special

interests in research on the benefits of collaborative human-machine partnerships, as well as examining how the "emergent intelligence of groups, organizations, and networks intersect with processes of learning, behavior and cognition in individuals."

Additional changes to existing SBE programs will be announced throughout September as part of SBE Assistant Director Skip Lupia's reorganization of the Directorate. Additionally, the agency plans to issue a Dear Colleague Letter (DCL) in the coming weeks to outline these changes and the creation of new programs to support social and behavioral science research in emerging SBE priorities.

Deadlines: The next submission deadlines for proposals are January 15, 2020 and July 8, 2020.

Eligibility: Eligible applicants under this opportunity include institutes of higher education. There is no limit on the number of proposals per individual principle investigator or organization.

Sources and Additional Information:

- Program details can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505731.

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NIST Releases Notice Seeking Industrial IoT Solutions for the Energy Sector

The National Institute of Standards and Technology (NIST) National Cybersecurity Center of Excellence (NCCoE) issued a Federal Register Notice October 8 seeking technology and expertise that can demonstrate Industrial Internet of Things (IIoT) cybersecurity and infrastructure protection practices for its energy sector use case. NIST intends to select solution providers for a Cooperative Research and Development Agreement (CRADA) to deliver products and technical expertise to support and demonstrate security platforms for the Securing the IIoT for the energy sector use case. This use case is intended to provide a cybersecurity framework that uses "commercially available and/or open-sourced products that can be referenced to secure IIoT in commercial and/or utility-scale distributed energy resource environments."

IIoT refers to the application of instrumentation and connected sensors and other devices to machinery and vehicles in the transport, energy, and industrial sectors. In the energy sector, distributed energy resources (DERs), such as solar photovoltaics and wind turbines, introduce information exchanges between a utility's distribution control system and the DERs to manage the flow of energy in the distribution grid.

With this notice, NIST is looking for organizations that can provide:
- "Access control techniques for network, application, and data access;
- Data integrity technologies that protect data at rest or in transit, detect data integrity violations, and ensure data authenticity;
- Graph analytics, machine learning, behavioral monitoring, and predictive analytics that aid in detecting malware and data integrity violations;
- Information visualization and dashboard techniques that present analytic results to human operators;
- Infrastructure components to construct or emulate the elements of the conceptual architecture;

- Infrastructure components that incorporate integrity and trustworthiness techniques;
- Sensors, network monitoring, system monitoring, data acquisition devices, intelligent sensor gateways, and security information and event management (SIEM) systems that provide data and event information for analysis;
- System/device and human authentication techniques that support federation;
- Trustworthy distributed audit trails for accountability; and/or
- Workflow techniques to orchestrate analysis."

Interested organizations should also articulate in their letters how their products or expertise addresses solution characteristics which include: analysis and visualization; authentication and access control; behavioral monitoring; command register capabilities; data integrity; and/or malware detection.

Those who would like to participate must contact Jim McCarthy at energy_nccoe@nist.gov to request a letter of interest template. Completed letters are accepted on a first-come, first-served basis. The parties chosen to participate will enter into a CRADA with NIST. Participating in this CRADA would be a valuable opportunity to connect with other thought leaders in this space, inside and outside the agency. It also will demonstrate interest and expertise for potential future partnerships with the federal government in IIoT cybersecurity.

Eligibility: All interested organizations can participate in this notice.

Due Date: Letters of interest will be accepted on a first-come, first-served basis until all necessary components of the use case have been addressed.

Sources and Additional Information:
- The Federal Register notice can be found at https://www.federalregister.gov/documents/2019/10/08/2019-21852/national-cybersecurity-center-of-excellence-nccoe-securing-the-industrial-internet-of-things-for-the.
- More information about the IIoT use case can be found at https://www.nccoe.nist.gov/projects/use-cases/energy-sector/iiot.

Department of Energy Upcoming Opportunities and Future Research Directions for Advanced Scientific Computing Research

The report below provides advance intelligence on future research directions for the Department of Energy (DOE) Office of Science in applied math, computer science, and high performance computing. The analysis is based on information from the September 23-24 Advanced Scientific Computing Advisory Committee (ASCAC) meeting and discussions with DOE program managers. ASCAC provides advice to the Office of Science to advance the research and infrastructure priorities of the Advanced Scientific Computing Research (ASCR) program.

Future Research Directions and Priorities
DOE did not provide many specifics on future funding opportunities because appropriations and spending allocations for fiscal year (FY) 2020 have not been finalized. However, DOE did announce that a formal solicitation for **national quantum information science (QIS) research centers** would be released shortly after FY 2020 appropriations are complete—which could be as early as November—and final selections are expected early next summer. DOE confirmed that the solicitation, consistent with the congressional authorizing legislation creating these centers, would fund between two and five

centers depending on the size and scope of submitted proposals. Congress currently has $75 million allocated for these centers. This announcement follows a request for information (RFI) that was released in July 2019 and the funding solicitation incorporates recommendations submitted to DOE. ASCR Associate Director Barb Helland also noted that ASCR has selected FY 2019 proposals for artificial intelligence (AI), machine learning, and data analytics co-design centers, and AI and uncertainty quantification, and that the awards would be publicly announced shortly.

Outside of these specific announcements, discussion centered mainly on the future of ASCR's foundational research programs now that the Exascale Computing Project (ECP) is ramping down in anticipation of the deployment of exascale computing systems in 2021. ASCR and ASCAC are each supporting separate efforts aimed at defining ASCR's post-exascale research agenda.

AI for Science Townhalls – Since July, ASCR has held three out of four planned townhall meetings to help identify future research directions at the intersection of AI and the scientific priorities of the DOE Office of Science. To date, 1,155 scientists from national laboratories, research universities, and industry have participated in these townhalls. Specific emphasis is being placed on understanding how to leverage the integration of modeling and simulation, data science, and machine learning toward achieving the following over a 10-year horizon:
- Learned models begin to replace data;
- Experimental discovery processes are dramatically refactored;
- Many questions are pursued semi-autonomously at-scale;
- Simulation and AI approaches merge;
- Theory becomes data for next-generation AI; and
- AI becomes a common part of scientific laboratory activities.

The first three townhalls have featured breakout sessions on AI for specific scientific domains as well as crosscutting areas. AI applications of most interest to DOE include materials, chemistry, nanoscience, earth systems, biology and life sciences, fundamental physics, engineering manufacturing, smart energy infrastructure, computer science, and fusion. Some of the crosscutting issues being addressed are data life cycle and infrastructure, hardware architectures, AI for experimental facilities, and AI at the edge.

The last townhall will be Washington, DC October 22-23. During the event, the townhall organizers from the national labs will present six-page summary reports accompanied by 12 slide summary power point presentations for each domain area. This will help identify any gaps and inform the development of a final, comprehensive townhall report that will then be submitted to ASCR leadership with recommendations for more specific Basic Research Needs workshops in future years to contribute to funding decisions.

ASCAC Subcommittee on Exascale Transition – ASCR has charged ASCAC with retrospectively examining ECP and developing recommendations for retaining ECP's best practices, sustaining exascale hardware and software in the long term, and reinvigorating ASCR's foundational research programs. For the latter in particular, the ASCAC subcommittee found that the prioritization of ECP over the last several years diverted resources that would have otherwise maintained ASCR's historic support for research and workforce development in the mathematical, computational, and computer sciences. As such, the ramp-down of ECP offers ASCR the opportunity to significantly reinvest in research that is both long-term and interdisciplinary. Specific areas in applied mathematics (AM) and computer science (CS) could include:
- Data-driven approaches in uncertainty quantification and modeling (AM);

- Scientific machine learning (AM);
- Mathematics and software stack for post-Moore's Law extreme heterogeneity (AM);
- Scalable algorithms (AM);
- Improving programmer productivity through expressive programming models, intelligent, domain-aware compilers, and certified software (CS);
- Enabling reproducible science through validation methods for non-deterministic architectures and detection/mitigation of faults/errors (CS); and
- Facilitating data management, analytics, and workflows through machine learning approaches (CS).

During his presentation, the Subcommittee chair, Dr. Roscoe Giles of Boston University, announced his intention to have a final report presented to the full ASCAC at the December 2019 meeting.

Funding Outlook for ASCR

In FY 2019, Congress appropriated $935.5 million to this program, an increase of $126 million or 16 percent above FY 2018. The increase was primarily driven by the needs of the Exascale Computing Initiative which aims to deploy the first two exascale computing systems at Argonne and Oak Ridge National Laboratories in 2021 and 2022, respectively. Additional funding was also provided to expand research efforts in AI and QIS, which was reflected in several solicitations that ASCR released over the last year.

For FY 2020, Congress and the Administration would diverge in their approach to funding ASCR. The President's request of $921 million would constitute a slight decrease of two percent below current levels, driven primarily by the end of peak funding for ECP. Meanwhile, the House and Senate would provide ASCR with $956.5 million and $1.03 billion, representing increases of 2.2 percent and 10 percent, respectively. These potential increases are predicated on the need to reinvigorate ASCR's core research programs while continuing to expand investments in the aforementioned emerging areas. Additionally, the Senate mark in particular would provide significant increases to support exascale-related upgrades to the Leadership Computing Facilities at Argonne and Oak Ridge National Laboratories and the National Energy Research Scientific Computing Center at Lawrence Berkeley National Laboratory. The chart below includes a detailed breakdown of ASCR's budget, and includes comparisons between the Administration's FY 2020 request and proposals from House and Senate appropriators.

ASCR FY 2020 President's Request
in thousands

	FY 2018	FY 2019	FY 2020		
	Enacted Approp.	Enact	Request	House Mark	Senate Mark
Mathematical, Computational, and Computer Sciences Research					
Applied Mathematics	34,104	28,206	41,500		
Artifical Intelligence and Big Data (Non Add)	*(...)*	*(...)*	*(14,281)*		
Computer Science	29,508	22,000	38,700		
Artificial Intelligence and Big Data (Non Add)	*(6.402)*	*(2,000)*	*(9,719)*		
Quantum Information Science	*...*	*(3.000)*	*(5,000)*		
Computational Partnerships	49,910	75,667	60,959		
Artificial Intelligence and Big Data (Non Add)	*(3.500)*	*(13,000)*	*(12,000)*		
Quantum Information Science	*(6,349)*	*(16,214)*	*(16,708)*		
SBIR/STTR	4,301	4,768	5,347		
Total, Mathematical, Computational, and Computer Sciences Research	117,823	130,641	146,506	155,000	168,944
High Performance Computing and Network Facilities					
High Performance Production Computing (NERSC)	94,000	104,000	85,000	100,000	115,000
Leadership Computing Facility at ANL (ALCF)	110,000	140,000	150,000	150,000	165,000
Exascale	*(...)*	*(100,000)*	*(150,000)*	*(150,000)*	*(150,000)*
Leadership Computing Facility at ORNL (OLCF)	162,500	199,000	210,000	225,000	235,000
Exascale	*(62,500)*	*(100,000)*	*(125,000)*	*(125,000)*	*(125,000)*
Total, Leadership Computing Facilities	272,500	339,000	360,000	375,000	400,000
Research and Evaluation Prototypes	24,260	24,452	39,453	25,620	42,000
CSGF	*(10,000)*	*(10,000)*	*(10,000)*	*(10,000)*	*(12,000)*
Quantum Infromation Science	*(14,260)*	*(14.452)*	*(29,453)*	*(15,620)*	*(30,000)*
High Performance Network Facilities and Testbeds (ESnet)	79,000	84,000	80,000	90,000	90,000
SBIR/STTR	17,417	20,701	21,194	22,185	24,321
Total, High Performance Computing and Network Facilities	487,177	572,153	585,647	612,805	671,321
Exascale Computing					
17-SC-20 Office of Science Exascale Computing Project (SC-ECP)	205,000	232,706	188,735	188,735	188,735
Total, Advanced Scientific Computing Research	**647,000**	**935,500**	**920,888**	**956,540**	**1,029,000**

Source: DOE

The Senate would provide $195 million for QIS research activities across the Office of Science, including $75 million for large-scale national QIS research centers, $26.5 million above the Administration's request. Furthermore, the bill would provide the requested level of $71 million for Office of Science-wide AI activities. The House mark is supportive of DOE's efforts in these areas but does not recommend specific funding levels for them. The chart below outlines how funding for the Administration's priority areas has been allocated across all six Office of Science program offices.

FY 2020 Priority #1 Research Initiatives

Dollars in Thousands

Research Initiative	ASCR	BES	BER	FES	HEP	NP	Total
Machine Learning / Artificial Intelligence	36,000	10,000	3,000	7,000	15,000		71,000
Biosecurity			20,000				20,000
Quantum Information Science	51,161	52,503	12,000	7,520	38,308	7,000	168,492
Exascale Computing	463,735	26,000	10,000				499,735
Microelectronics		25,000					25,000
Isotope Development and Production for Research and Applications						47,500	47,500
U.S. Fusion Program Acceleration				4,000			4,000
Total	**550,896**	**113,503**	**45,000**	**18,520**	**53,308**	**54,500**	**835,727**

Source: DOE

Sources and Additional Information:

Tufts Washington Update
Prepared by Lewis-Burke Associates LLC
October 10, 2019

- For further reference, the ASCAC meeting agenda, including presentations, is available at https://science.osti.gov/ascr/ascac/Meetings/201909.

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Funding Opportunities

National Science Foundation Announces New Solicitation to Support National Artificial Intelligence (AI) Research Institutes

The National Science Foundation (NSF) has announced a new solicitation to support new Artificial Intelligence (AI) Institutes. This solicitation is a joint activity with the U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA), the U.S. Department of Homeland Security (DHS) Science and Technology Directorate (S&T), the U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA), and the U.S. Department of Veterans Affairs (VA). The AI Institute-scale activities aim to support longer, larger awards for multi-disciplinary and multi-stakeholder teams to advance AI research and education and to address societal grand challenges.

The solicitation invites proposals in two tracks:
- The **Institute Track**: awards up to $20 million over five years, which must focus on one or more of the themes below:
    - Trustworthy AI;
    - Foundations of Machine Learning;
    - AI-Driven Innovation in Agriculture and the Food System;
    - AI-Augmented Learning;
    - AI for Accelerating Molecular Synthesis and Manufacturing; and
    - AI for Discovery in Physics.
  NOTE: additional information on each of the six themes is included in the full solicitation.
- The **Planning Track**: awards up to $500,000 over two years, "in any areas of foundational and use-inspired research appropriate to NSF and its partner organizations."

The solicitation seeks proposals that both advance foundational AI research to develop theories and methods that can be applied across any domain or application, and leverage use-inspired research. The solicitation purposefully differentiates between use-inspired and applied research to emphasize its goal to "support work that goes beyond merely applying known techniques and adds new knowledge and understanding in both foundational AI and use-inspired domains." In addition to these goals, proposals are encouraged to "drive new and innovative education and development;" support "multidisciplinary groups of scientists, engineers and educators;" and "promote organizational collaborations and linkages within and between campuses, schools, and the world beyond, broadening participation in research, education, and knowledge transfer activities through a network of partners and affiliates."

The overarching vision for this program is to advance AI to address societal issues such as "personalized healthcare; enhanced national security; improved transportation; and more effective education." As set out in the 2019 update to the National Artificial Intelligence Research and Development Strategic Plan, future advances in AI require long-term investment. Sustained investment through these new AI Institutes "holds the potential for further economic impact and quality-of-life improvements." While this solicitation focuses on six themes for the Institutes track, future solicitations may include additional themes, open tracks, or both.

Total Funding and Award Size: NSF plans to make between one to six Institute awards and up to eight Planning Grants. Institutes will be funded between $16 million for four-year Institutes or up to $20 million for five-year Institutes. Planning Grants will be funded up to $500,000 for up to two years. Total funding of $24 million to $124 million is available for this program.

Deadlines: Full proposals are due **January 28, 2020**; planning proposals are due January 30, 2020.

Eligibility: Eligible applicants under this opportunity include institutes of higher education, non-profits, and research labs. There is no limit on the number of proposals per organization; however, individuals may only be designated as "senior personnel," including PI or Co-PI, on two proposals. Additionally, proposals that request funding through NIFA are only open to agricultural experiment stations; colleges and universities; university research foundations; other research institutions and organizations; national laboratories; federal agencies; private organizations or corporations; or individual US citizens, nationals or permanent residents. Foreign or International organizations are not eligible for funding through NIFA.

Sources and Additional Information:
- Program details can be found at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505686.
- Full solicitation available at https://www.nsf.gov/pubs/2020/nsf20503/nsf20503.htm.
- The 2019 update to the National Artificial Intelligence Research and Development Strategic Plan is available at https://www.nitrd.gov/pubs/National-AI-RD-Strategy-2019.pdf.

Department of Energy ARPA-E Releases Funding Opportunity for Advanced Nuclear Reactor & Maintenance Enhancement

On October 2, the Advanced Research Projects Agency-Energy (ARPA-E) released a funding opportunity announcement (FOA) through a new program, Generating Electricity Managed by Intelligent Nuclear Assets (GEMINA). The GEMINA program seeks innovative proposals that improve advanced nuclear reactor (AR) design through enhanced operation and maintenance (O&M). Specifically, this FOA "seeks interdisciplinary teams to develop digital twins (DTs), or a technology with a similar capability, for an AR design as the foundation of O&M strategy." Successful applicants will ideally mirror efficiencies from other industries and utilize approaches ranging from AI, advanced control systems, predictive maintenance, and model-based fault detection. Projects should also focus on O&M solutions for the reactor core, balance of plant (BOP), or entire reactor plant system.

The GEMINA program ultimately plans to employ lower O&M costs to encompass not only advances in nuclear reactor design, but increase efficiency of facility regulation, de-risk cost estimates, comply with advanced standards and streamline training procedures. Because the existing fleet of nuclear reactors have high fixed O&M costs as compared to other forms of electricity generation, GEMINA hopes to create a tenfold reduction in O&M costs in AR's and increase the economic competitiveness of nuclear energy. This program highlights ARPA-E's interest in managing complex, energy dense advanced reactors at similar efficiencies to comparable low-carbon, economically efficient electricity sources such as wind, solar or natural gas.

Eligibility: This FOA is open to U.S. universities, national laboratories, industry, and individuals.

Due Date: Interested applicants are required to submit a concept paper by **9:30 AM ET, October 28, 2019.** Submission deadline for total applications has not yet been released. ARPA-E strongly recommends submitting all materials at least 48 hours before the deadlines.

Award Information: It is anticipated ARPA-E will have $35 million in total funding for FY 2020. Award amounts may vary between $250,000 and $10 million.

Sources and Additional Information:

- The full solicitation can be found at https://arpa-e-foa.energy.gov/#FoaId4f8d5ac3-267d-4849-ad63-80f858761a74.

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Department of Energy Releases Two New Funding Calls for Energy-Smart Farms and Improved Risk Management of the Grid

The Department of Energy's (DOE) Advanced Research Projects Agency-Energy (ARPA-E) recently released two new funding opportunities focused on energy-smart farms and improved performance and risk management of the grid. In the next few weeks, ARPA-E also plans to release a $35 million funding opportunity on optimal operations and maintenance for advance nuclear reactors. With growing congressional appropriations, ARPA-E plans to grow the average size of its focused program solicitations from $25 million to $35 million, which would increase the number of awards. Future topic areas are likely to include flexible carbon capture, carbon-optimized bioconversion, electric motors for aviation, waste to energy, and advanced fusion reactor concepts.

Energy-Smart Farm
On September 19, ARPA-E released a $10 million funding opportunity on "establishing validation sites for field-level emissions quantification of agricultural bioenergy feedstock production" under its Solicitation on Topics Informing New Program Areas. This new topic aims to develop "gold-standard" datasets to:
- "Pilot data capture and transfer methods for supply-chain-wide lifecycle analysis (LCA);
- Validate new, low-cost technology approaches to measuring and improving feedstock production efficiency; and
- Provide new high-resolution data to the R&D community for technology development."

This will be an initial investment in the broader topic of energy-smart farms. ARPA-E plans to release future opportunities. More information on future program priorities can be found in materials presented in a February 2018 ARPA-E workshop entitled "The Energy-smart farm: Distributed intelligence networks for highly variable and resource constrained crop production environments" are available through the link below.

Award Information: ARPA-E expects to make three awards worth a total of $10 million over three years.

Due Date: Applications are due **9:30 AM ET** on **November 18, 2019**.

Improved Risk Management of the Grid
The Department of Energy's (DOE) Advanced Research Projects Agency-Energy (ARPA-E) released a new $30 million funding opportunity topic for its Solicitation on Topics Informing New Program Areas on September 19.   The new topic is titled "Performance-based Energy Resource Feedback, Optimization, and Risk Management" (PERFORM). PERFORM aims to develop innovative risk management systems of emerging grid technologies to ensure a reliable and resilient energy grid. This new topic comes from increased attention toward transitioning electric grids to be modern, clean and sustainable while maintaining affordability and reliability. With a constant flow of novel technologies being deployed on electric grids, new management systems are necessary to leverage capabilities and minimize risk given high levels of stochastic resources.

Of note is ARPA-E's interest in utilizing a risk-driven paradigm to help understand supply-demand balances. The program hopes to foster research that quantifies and manages risk at both the asset and system level, and design grid management systems that capture uncertainty while balancing collective risk of all assets. ARPA-E would like to develop a risk score that would clearly communicate the risks of utilizing specific energy assets, similar to the role a credit score plays in determining the creditworthiness of an individual. ARPA-E also hopes to create partnerships between the finance, insurance, and actuarial science communities, which have a history of defining and quantifying risk, with domain-specific experts, such as engineers, operations researchers and market designers.

Award Information: ARPA-E expects to make between eight and 12 awards ranging from $250,000 and $10 million. ARPA-E will provide support at the highest funding level only for submissions with significant technology risk, aggressive timetables, and careful management and mitigation of the associated risks. ARPA-E will also support proof of concept R&D efforts.

Due Date: The submission deadline for concept papers is **9:30 AM ET, October 28, 2019.** Submission deadline for total applications is **TBD**.

Sources and Additional Information:
- The full Energy-Smart Farm solicitation can be found at https://arpa-e-foa.energy.gov/Default.aspx#FoaIde8647d89-1cac-4b58-8622-1b04de8958c4.
- The full Improved Risk Management of the Grid solicitation can be found at https://arpa-e-foa.energy.gov/Default.aspx#FoaIdcf23a62d-a269-4369-a408-bfb4ba014f8d.
- The Solicitation on Topics Informing New Project Areas can be found at https://arpa-e-foa.energy.gov/Default.aspx#FoaIde8647d89-1cac-4b58-8622-1b04de8958c4.
- The materials from the February 2018 ARPA-E workshop entitled "The Energy-smart farm: Distributed intelligence networks for highly variable and resource constrained crop production environments" can be found at https://arpa-e.energy.gov/?q=workshop/energy-smart-farm-distributed-intelligence-networks-highly-variable-and-resource.

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Department of Defense Announces RFI for Synthetic Biology Manufacturing Institute
The Department of Defense (DOD) announced on September 30 its request for information (RFI) for a new Manufacturing Innovation Institute (MII) for synthetic biology (SynBio). The institute will scale up critical bio-manufacturing processes and related biotechnologies in partnership with industry and academia. Of the 14 national MIIs, also known as ManufacturingUSA, eight DOD-sponsored MIIs are

managed by the Manufacturing Technology (ManTech) program within the Office of the Undersecretary of Defense for Research and Engineering (OUSD(R&E)). Based on the existing model, MIIs are typically established as public-private partnerships with government, industry, and academia through five-year cooperative agreements with DOD providing funding in the range of $70 to $80 million over the duration of the institute. As previously reported by Lewis-Burke, the DOD has identified biotechnology as one of its leading modernization priorities, alongside large-scale capabilities like hypersonics and directed energy.

Of note, the SynBio institute will be distinct from two existing MIIs that focus on biotechnology. While the Department of Commerce's National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) focuses on manufacturing for biologic therapies, and the DOD's BioFabUSA institute focuses on advanced regenerative medicine, the new institute will focus on **non-biomedical applications**, including scale-up manufacturing, down-stream processing, and testing and evaluation of biosynthetic products.

More specifically, the SynBio institute is expected to deliver:
1) "Commercializable amounts of target molecules, materials, or cell-based products through scale-up manufacturing and down-stream processing.
2) Platforms for testing and evaluation in order to rapidly and thoroughly assess and identify novel functionalities of target molecules, materials or cell-based products."

The goal of the RFI is to understand how the institute can best utilize the public-private partnership model and understand the technology scope for both defense and commercial products. There will be two stakeholder workshops on October 23, 2019 in Boston, MA and October 25, 2019 in San Jose, CA. Industry and academia are invited to provide perspectives and comments at these events.

Due Dates: RFI responses are due **Nov. 8, 2019** at **3:00PM local time**.

Eligibility: DOD is seeking responses from industry, academia, nonprofits, and other relevant stakeholders.

Sources and Additional Information:

- The full RFI is available www.fbo.gov under pre-solicitation "FA8650-19-S-5028."
- Manufacturing USA's announcement of the DOD SynBio institute can be found at https://www.manufacturingusa.com/news/dod-announces-request-information-new-manufacturing-innovation-institute-dedicated-synthetic.
- More information on the DOD MIIs can be found at https://www.dodmantech.com/.
- Registration for the stakeholder events can be found at https://synbio.anser.org/.

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Department of Defense Releases Naval Engineering Education Consortium BAA

The Department of Defense (DOD) recently released a broad agency announcement (BAA) for the Naval Engineering Education Consortium (NEEC). The NEEC program, directed by the Naval Sea Systems Command (NAVSEA) Warfare Center, encourages student participation in the naval engineering workforce through project-based research in naval technology. The Indian Head Explosive Ordnance Disposal Technology Division (IHEODTD) of the Naval Surface Warfare Center (NSWC) is soliciting

research of interest to participating Warfare Centers around the country. Some of the BAA topics of interest include data science, machine learning and artificial intelligence, and unmanned underwater vehicles.

Due Dates: Eligible applicants may submit full proposals through www.grants.gov under more than one topic area. Applicants may submit multiple proposals but may not submit the same technical proposal to more than one warfare center or activity. The closing date for this BAA is **November 1, 2019** at **11:59 PM ET**.

Total Funding and Award Size: DOD has not specified an amount of funds to be dedicated to this BAA. DOD estimates awarding approximately $150,000 per individual award, though the number and size of awards will vary amongst the research areas and depend on the quality of proposals submitted.

Eligibility and Limitations: DOD is accepting proposals from "all responsible sources from academia." Minority Institutions are encouraged to apply. Federally Funded Research & Development Centers, DOD and civilian agency laboratories, and University Affiliated Research Centers are not eligible to submit proposals.

Source and Additional Background:
- The full BAA is available at www.grants.gov under solicitation number "N00174-19-0001."
- Lewis-Burke's full analysis of the NEEC BAA can be found here.

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NIMHD, NICHD and NIEHS Announce Limited Competition for Specialized Centers of Excellence on Environmental Health Disparities Research

The National Institute on Minority Health and Health Disparities (NIMHD), National Institute of Child Health and Human Development (NICHD), and the National Institute of Environmental Health Sciences (NIEHS) have released a funding opportunity for Centers of Excellence on Environmental Health Disparities Research (P50 activity code). This grant program is designed to support multidisciplinary research, increase research capacity, and invest in community-engaged research activities aimed at reducing or eliminating environmental health disparities. Proposals should integrate social and environmental determinants of health to investigate known conditions with environmental components which also disproportionately affect minority groups.

Projects may address a range of diseases and conditions associated with significant morbidity and mortality in health disparity populations, including obesity, diabetes, cardiovascular disease, chronic obstructive pulmonary disease (COPD) and other respiratory conditions, cancer, HIV/AIDS and other infectious diseases, chronic stress, depression, and others with a known environmental component. NICHD is particularly interested in addressing infant mortality and maternal morbidity and mortality.

This initiative encourages cross-cutting analyses on different diseases and disorders and the multitude of environmental factors that may cause them. It also promotes research on understudied geographic areas including rural and remote communities, tribal organizations, and migrant or immigrant populations.

Each center must include the following components:
- An administrative core to provide oversight and evaluation for project success.
- An investigator development core to provide research training and professional development opportunities to foster the generation of future pilot projects.
- A Community Engagement and Dissemination Core to facilitate relationships with community stakeholders including but not limited to public health literacy, effectiveness measurement, bi-directional dialogue between center officials and members of the community, and research participation opportunities.

Projects must have a focus on one or more NIH-designated health disparity population (Blacks or African Americans, American Indians or Alaska Natives, Asians, Hispanics or Latinos, Native Hawaiians and other Pacific Islanders, socioeconomically disadvantaged populations, underserved rural populations, and sexual and gender minorities) and should involve the work of minority researchers.

Deadline: Applications can be submitted beginning on October 22, 2019. Letters of intent must be submitted by October 23 with a final deadline of **November 22, 2019**.

Award Information: The three institutes will contribute a total of **$4.3 million in funding for a maximum of 3 awards**. Award budgets are limited to $950,000 in direct costs annually and the maximum project period is five years.

Eligibility: Any public or private institution of higher education is eligible to apply. Those that have a significant number of students from NIH-designated minority health disparity populations or have made significant efforts to recruit such students are especially encouraged to apply.

Sources and Additional Information:

- The full solicitation can be found at https://grants.nih.gov/grants/guide/rfa-files/RFA-MD-20-001.html.

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NOAA Releases Broad Agency Announcements to Conduct Satellite Instrument and Mission Concepts Studies

On October 3, the National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite, Data, and Information Service (NESDIS) released a pair of broad agency announcements (BAAs). The BAAs seek to engage the commercial sector in developing new concepts for instruments, spacecraft, business models, and mission elements for NOAA's future space-based observation architecture beyond the Joint Polar Satellite System (JPSS) and Geostationary Operational Environmental Satellites-R Series (GOES-R).

NESDIS is requesting white papers to:
- "Conduct studies of instrument concepts and integrated mission concepts in support of needs for regional real-time weather data and space weather data collection as part of a Geostationary, Highly Elliptical, and Lagrange Orbit Concept Exploration."

- "Conduct studies of instrument concepts and/or integrated mission concepts in support of needs for non-real-time global sounding weather data to support the needs of the space based environmental monitoring community; in particular, National Weather Service Numerical Weather Prediction (NWS NWP) systems."

NESDIS seeks information and guidance in these BAAs on how the community could provide instruments and capability both near-term and in the post-2030 space-based observation architecture.

Funding: An anticipated total of $2 million is available to support 4-8 studies for Low Earth Orbit (LEO) Sounding Satellite (SounderSat) Concept Exploration. An anticipated total of $9.99 million is available to support 8-12 awards for studies. NESDIS will select submissions for continued study and will issue direct requests for proposals (RFPs) to those selected parties.

Industry days will be held on **October 17 and 18, 2019,** to allow for interested stakeholders to connect with program managers. All interested parties should pre-register for the event. Remote access capabilities will be available for those unable to attend in person. Questions should be submitted no later than **October 15, 2019,** at **12:00 PM ET** to the Contracting Officer, David Marks, at david.marks@noaa.gov.

Eligibility: Any interested party can apply to both BAAs. Offerors may include single entities or teams from private sector organizations, government laboratories, and academic institutions.

Due Date: White papers are due **November 7, 2019,** at **3:00 PM ET.**

Sources and Additional Information:
- The NOAA press release on the BAA announcement is available at https://www.space.commerce.gov/noaa-to-engage-commercial-sector-on-future-space-architecture-elements/.
- The BAAs are available at https://www.fbo.gov/index?s=opportunity&mode=form&id=0f69006c532c4309d5b6c39c8159302e&tab=core&_cview=0.
- The registration link for the NOAA LEO/GEO BAA industry days is available at https://www.eventbrite.com/e/nesdis-next-gen-baas-industry-day-registration-75040298553.