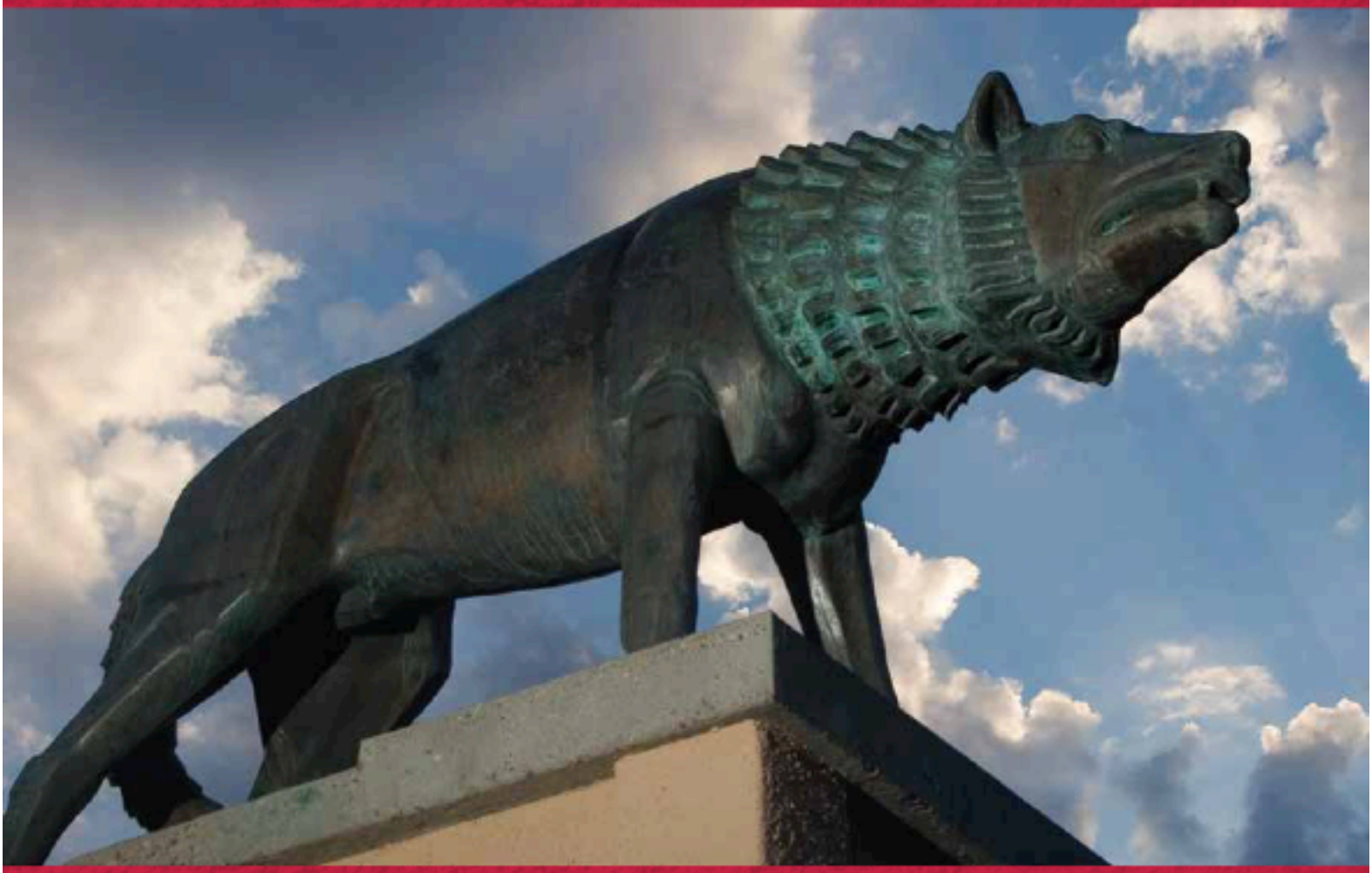
FEDERAL PRIORITIES

Fiscal Year 2020

Prepared For The New Mexico Congressional Delegation



Empowering our STATE of minds.

THE UNIVERSITY OF NEW MEXICO

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UNM 2020 FEDERAL PRIORITIES

ENERGY AND WATER

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The National Quantum Initiative Act

National Endowment for the Humanities and National Endowment for the Arts

SBIR/STTR Support for New Mexico Minority Entrepreneurial Small Business

Appropriations Bill: Energy and Water
Federal Agency: Department of Energy (DOE)
Federal Agency Program Office: Office of Economic Impact & Diversity
Current Federal Funding Level: $10.169 million
President's FY20 Budget Request: TBD

UNM Contacts: Lisa Kuuttila, CEO and Chief Economic Development Officer, STC.UNM, 505-272-7905, Kuuttila@stc.unm.edu and Rob DelCampo, Executive Director, Innovation Academy and Rutledge Endowed Professorship in Management, Anderson School of Management 505 277-0018, delcampo@unm.edu

Request:
UNM requests the following report language:
"Congress remains concerned by the small number of SBIR and STTR DOE grants that are awarded to minority and women-owned small businesses. Recently, the National Academies found that DOE has some of the lowest participation numbers of women and minority-owned businesses, and they asserted that extensive and focused outreach activities will be needed to increase the success rates. Congress agrees with the National Academies recommendation and provides $3 million to support the creation of regional technical support centers to assist newly-forming and existing minority and women-owned small businesses to secure a more proportional share of SBIR and STTR grants."

Background:
FY20 funding for this program would support newly-forming and existing minority-owned small entrepreneurially-based businesses in New Mexico and secure a more proportional share of SBIR and STTR grants. SBIR and STTR awards in New Mexico have been approximately $661 million in the history of the program to 373 firms. In FY16, there were 66 awards to 41 companies for $2.7 million for Phase I and II SBIR/STTRs. New Mexico is a minority-majority state and UNM is a minority-majority institution, with more than 50 percent of both populations made up of Hispanic and Native American residents/students. However, there is a significant gap in the proportional share of SBIR/STTR awards made to minority-owned small businesses in New Mexico.

Rationale:
Most small businesses today are entrepreneurial. The STEM-based companies eligible for SBIR/STTR grants often have roots in science and engineering at the nation's national laboratories and universities. New Mexico is rich in science, engineering, technology and innovation assets due to its national laboratories and universities. However, we do not have a pro-rate share of existing and new small entrepreneurial businesses representing the diverse population in New Mexico. This problem can be addressed by the creation of more minority-owned businesses eligible for STTR/SBIR grants and providing assistance for existing minority-owned small businesses in the application for the grants. UNM is ideally positioned to create a program which would address both aspects of the problem. UNM and STC.UNM (the technology transfer and economic development arm of UNM) have the infrastructure needed to build a minority focus into the creation and support of minority businesses that can be more competitive for SBIR/STTR awards.

The current infrastructure includes:

- UNM Innovation Academy (iA), which infuses creativity, innovation and entrepreneurship in students from all disciplines.
- Innovate New Mexico, a partnership led by STC.UNM and including Sandia National Laboratories, Los Alamos National Labs, Air Force Research Lab, UNM, NMSU, and New Mexico Tech to showcase innovation assets and start-up companies inside and beyond the state.
- Partnerships with Sandia for research and technology transfer with more than 200 jointly-owned inventions and AFRL for research and technology transfer support.
- A NSF ICorps program uniquely serving student-led STEM business ideas as well as faculty-research based business ideas.

Description:

The request would support the creation of a new program, jointly hosted by UNM iA and STC.UNM, called the SBIR/STTR Support for New Mexico Minority Entrepreneurial Small Businesses, with two components:

Part one: iA and STC staff would be augmented to support the creation of more minority-owned STEM small businesses, based on faculty research as well as student-created ideas. The NSF ICorps program is a perfect feeder into the program.

Part two: Staff would be hired to train and support existing minority-owned small business to be competitive on SBIR/STTR grants.

Both aspects of the program would encourage partnerships with New Mexico's research universities, as appropriate, to make for stronger proposals.

Impact on UNM/NM/US:

It has been shown that economic growth in the U.S. in terms of new jobs is coming almost exclusively from small businesses in recent years. An under-tapped asset for New Mexico and the U.S. has been the development of STEM-based minority-owned small business. This program is about increasing the effort, not about re-distributing it. More businesses will be started in New Mexico, existing businesses will grow and expand, both in New Mexico and beyond, and more role models will be created for minority students, leading them to start entrepreneurial ventures themselves.

Notes

USACE Tribal Nations Technical Center of Expertise for Collaborating with University Partners

Appropriations Bill: Energy and Water
Federal Agency: United States Army Corps of Engineers (USACE)
Account: Investigations/Research and Development
Federal Agency Program Office: Tribal Nations Technical Center of Expertise (TNTCX)
FY19 Federal Funding Level:
Account: $25 million for Research and Development
President's FY20 Budget Request: TBD

UNM Contact: Kerry Howe, Professor, Department of Civil, Construction & Environmental Engineering and Director of Center of Water and the Environment (CWE), School of Engineering, 505-277-2702, howe@unm.edu

Request:
FY20 funding of Tribal Nations Technical Center of Expertise at $3.5 million and the following language: "The Committee directs the U.S. Army Corps of Engineers, through this program, to fund research collaboration efforts with university partners in support of the TNTCX mission."

Background:
The USACE Tribal Nations Technical Center of Expertise was established to provide a cost-effective administrative tool in support of the USACE Federal Trust Responsibility. Its mission is to improve USACE's quality and effectiveness in delivering USACE missions and federal trust responsibilities to federally recognized tribes. In that role, the TNTCX can engage with each of the 575 federally-recognized Native American Tribes, national and regional organizations representing Native American governments, state recognized and unrecognized Native American communities, and the USACE Commands serving those communities.

USACE has been expanding its engagement with Native American governments, creating the TNTCX with the mission of improving the delivery of USACE water resource, engineering, design, and planning services in Indian Country. As part of its strategy, the TNTCX is engaging with educational institutions around the country. Such partnerships strengthen the bandwidth and service capability of the TNTCX and the host University through training and collaboration as well as increasing sustainability through expanded outreach and partnerships. Partnering to meet Tribal unmet needs promotes mutual understanding and trust that results in more effective teamwork on regional issues. The positive effects of USACE/Tribal/University partnering extends well beyond the boundaries of any one community, improving the quality of life locally, regionally, and nationally.

The Center for Water and the Environment (CWE) at UNM has been in conversations with the TNTCX about developing a collaborative partnership through a memorandum of understanding, cooperative agreement, or another relationship. A significant portion of TNTCX work in western tribal lands consists of water resources projects, with a need for research or other investigations prior to construction of water resources facilities. UNM CWE could assist the TNTCX by performing these studies. Additionally, UNM students could participate in TNTCX projects as interns. While UNM hopes to benefit from expanded relationships with TNTCX, other universities nationwide are also eligible for collaborations.

Rationale:
UNM conducts a significant amount of research on water-related activities that are directly aligned with the USACE mission. Additionally, the CWE is focused on increasing interactions with tribes to increase the number of Native Americans who consider entering STEM professions. A close collaboration with the TNTCX will positively impact both the teaching and research missions of UNM.

Description:
The UNM CWE conducts research on water resource issues that are relevant on tribal lands, including the impact of climate change, drought, and forest fires on the quantity and quality of water available to downstream communities, water and wastewater treatment technologies that can be used for small rural communities, and the impact of groundwater contamination from past Uranium mining in tribal areas. In addition, it conducts training for operators of rural water and wastewater treatment facilities and provides other support for rural treatment facilities through an affiliated UNM center, the Southwest Environmental Finance Center. With the proposed funding, UNM CWE could conduct laboratory and field research, including hiring of undergraduates and graduate students to perform the work, to assist the TNTCX with research on these topics and site investigations that support the TNTCX mission, which could not be accomplished without a new funding stream. The students would learn engineering concepts and principles while working on real-world projects that improve the quality of life on tribal lands.

Impact on UNM/NM/US:
UNM could receive additional research funding to directly support TNTCX project on tribal lands, leading to generation of thesis and dissertations by UNM graduate students. UNM would increase its interactions with pueblos and tribes of the Southwest.

Notes

Directed Energy Microwave Source Development for DoD Testing and Evaluation

(Agile HPM Test Facility Development to Fill the T&E Capability Gap of Mil-Std 464D)

This is a General Atomics, Verus Research, University of New Mexico request for $15M (large company, small business, and academia) in FY20. This $15 million is for a 2.5-year program to develop high power microwave (HPM) pods to use in DoD test ranges for Test and Evaluation (T&E) of military assets. This would fill a T&E capability gap identified in the Military Standard, Mil-Std 464D.

Appropriations Bill: Defense
Federal Agency: Army
Federal Agency Program Office:
Account RDT&E, Army (APPROPRIATION 2040)
Line / BA RDT&E Management Support (BA 06)
PE / SAG Major T&E Investment (PE 0604759A)
Project Major Developmental Testing & Instrumentation (D984)
Current Federal Funding Level: FY19 enacted level - Department of Defense, RDT&E Army Major T&E Investment, $82.996 million
President's FY20 Budget Request: TBD

UNM Contact: Edl Schamiloglu, Distinguished Professor ECE and Associate Dean for Research and Innovation, School of Engineering, 505-277-6095, edls@unm.edu

Request:
Language Request: "The Committee recognizes the need to transition new and game changing Directed Energy (DE) technologies to the warfighter. All major defense services require an enduring Test and Evaluation capability to develop the doctrine and concepts of operation that will bring these technologies to operational use. The Committee provides $15 million to develop and test enduring frequency agile (tunable) High Power Microwave (HPM) sources suitable for evolving doctrine and High Power Microwave Directed Energy Concept of Operations (HPM DE CONOPS) at one or more U.S. Major Range and Test Facility Bases (MRTFBs)."

Background:
Developed in our research laboratories and demonstrated on our test ranges, DE systems are now making their way onto the battlefield. Concurrently, America's adversaries are researching and deploying DE weapon technologies. These facts drive the U.S. need to 1) optimize the effectiveness of our HPM systems, 2) assist in the development of doctrine and CONOPS, and 3) ensure survivability of U.S. military equipment against HPM attack. These needs require enhanced HPM system test capabilities. This request seeks to engage our test ranges by providing an enduring, frequency agile (tunable), HPM test capability to promote the effective development and fielding of U.S. HPM weapon systems, and the accurate assessment of U.S. system vulnerability to enemy HPM attack. Agile systems, with maximal HPM parameter variability, will provide a flexible capability optimizing test performance and increasing test tempo, thereby reducing costs. Such flexibility ensures an enduring test capability as threat performance estimates are revised (e.g., updates to MIL-STD-464) and new standardized HPM test methods are established (e.g., those under development by the DE Joint Transition Office.)

Rationale:
UNM will receive $1 million from this request and the funds will support additional graduate students in the Applied Electromagnetics program in ECE. The federal laboratories in the State (AFRL, LANL, Sandia) and industry require M.S. and Ph.D. students in this area and UNM will increase its throughput of graduate students to address the manpower issue facing these laboratories.

Description:
UNM has had a 30-year program in HPM started by Prof. Schamiloglu in 1988. More than 60 M.S. and Ph.D. students have graduated from this program, which is a highly coveted, niche program – the top such academic program in the USA. UNM graduate students will support Verus research through the design of various HPM source configurations, and General Atomics will integrate Verus-manufactured sources in pods to be flown in General Atomics UAVs.

Impact on UNM/NM/US:
UNM will increase its throughput of graduate students in Applied Electromagnetics in the ECE Department to address the manpower issue facing the federal laboratories in the State. In addition, numerous companies have established offices in NM (General Atomics being a recent example) and are looking to UNM to draw their M.S. and Ph.D. workforce.

Notes

Photonics: Science, Technology, and Materials

Appropriations Bill: Defense
Federal Agency: Department of Defense, Air Force Office of Scientific Research
Program Element Number: PE 0601102F/Defense Research Science, Project Number 613001
Current Federal Funding Level: $102.5 million
President's FY20 Budget Request: TBD

UNM Contact: Arash Mafi, Director, Center for High Technology Materials (CHTM) and Professor, Department of Physics & Astronomy, 505-272-7800, mafi@unm.edu

Request:
$104.1 million in FY20 for DoD-sponsored photonics initiatives including support for basic science, technological innovation, and optical materials study and development. This encompasses optoelectronics, nanophotonics, ultrafast optics, quantum optics, fiber and integrated photonics, lasers, and biophotonics. The following language is recommended: “The Committee supports increased funding for the Air Force Office of Scientific Research at the United States Department of Defense in photonics and urges the department to focus resources on university-based initiatives emphasizing basic science and technological innovation in photonics, and development and study of optical materials to ensure that the United States continues to maintain its global leadership in this strategic field.”

Background:
The science and engineering of light-based technologies is a multi-trillion dollar global market. With expertise and leadership in key areas of photonics and a prolific tradition in optical materials as the technology enabler, University of New Mexico, through CHTM, is uniquely positioned to support the cutting-edge research and work-force development in photonics.

In 2012, the US National Research Council released a report that called for a National Photonics Initiative (NPI) to increase collaboration and coordination among US industry, government and academia to identify and further advance areas of photonics critical to regaining US competitiveness and maintaining national security.

Rationale:
Funding photonics-based initiatives including support for basic science, technological innovation, and optical material study and development is vital to continuing our nation's leadership in this strategic area. The University of New Mexico is an international leader in photonics education and research through its Optical Science and Engineering (OSE) graduate program and the Center for High Technology Materials. It is critical for UNM to maintain and enhance this area because of its national importance in technology and defense, the proximity of DOD and DOE federal laboratories that can benefit from direct collaborations with UNM both through joint research initiatives and also the robust regional technical workforce that UNM provides for these laboratories.

Description:
Increased funding level will enable UNM to accomplish much more in the coming years in photonics research/innovation and education/workforce development. This will be achieved through the Optical Science and Engineering graduate program and the Center for High

Technology Materials, which provide internationally renowned platforms for interdisciplinary education and research in photonics and optical materials. CHTM is hiring two new faculty members in photonics in Fall 2019 with expertise in silicon photonics, high-speed optoelectronics, quantum information processing, detection and imaging systems, or quantum materials. Increased funding levels will enable UNM to pursue major funding opportunities from the DoD, especially under Multidisciplinary University Research Initiatives (MURI) programs; will enhance UNM's research portfolio to connect its past success to transformative technologies of the future, especially in quantum photonic materials; and will allow for future strategic faculty hirings in areas critical for the United States economy and defense.

Impact on UNM/NM/US:
The economic impact of the research performed at CHTM was studied in 2014 by the UNM Bureau of Business & Economic Research (BBER). BBER provides objective and credible economic information, analysis, and projections to New Mexico state and local government agencies, businesses, and the general public. BBER highlighted the sizable impact of CHTM on the New Mexico economy including 131 jobs in New Mexico on an ongoing basis, $6.5 Million in annual labor income, and $11.7 Million annual economic output. During 1983-2014, the cumulative total impact of CHTM has been more than $372 Million in economic output, which is nearly $2 for every $1 received from industry or government in support of its research. In addition, research at CHTM has supported nearly 500 graduate degrees in photonics-related fields, making it an important State and national hub for technical workforce development. The innovative culture at CHTM has resulted in more 200 U.S. patents (35 percent of the entire UNM portfolio). 14 start-up companies have been spun-off and many more small and large companies have been directly assisted by CHTM over the years.

Notes

Brain, Behavioral Health and Substance Abuse Research Facilities Expansion

Appropriations Bill: Labor/HHS/Education
Federal Agency: National Institutes of Health (NIH)/ National Center for Advancing Translational Sciences (NCATS)
Federal Agency Program Office: Office of Research Infrastructure Programs
Current Federal Funding Level: $50 million
President's FY20 Budget Request: TBD

UNM Contact: Richard Larson, MD, PhD, Executive Vice Chancellor for Health Sciences, 505-272-5102, rlarson@salud.unm.edu

Request:
"The Committee is pleased to see that NIH has revived the CO6 grant program and we urge its continuation in FY20. We also support the Director's efforts to ensure geographic and institutional diversity of the grant program through the Institutions of Emerging Excellence, and direct NIH to allocate 25% of the grants to these institutions."

Background:
The NIH/ORIP C06 grant program provides Federal funds for construction or major remodeling of biomedical research facilities. For UNM, such funds could enable construction of a state-of-the-art expansion of space for programmatic research relevant to some of the state's most pressing problems in brain and behavioral health and substance abuse. UNM will provide matching funds for this proposal. UNM is eligible as an Institution of Emerging Excellence—universities that have a high percentage of underrepresented students and that are engaged in training a diverse workforce.

Rationale:
This program would provide funding to expand interdisciplinary research in Domenici Hall on the UNM HSC campus. Domenici Hall represents the focal point of our brain and behavioral health research. It is space where our research activities in neuroscience, neuropharmacology, psychiatry, neurology and neurosurgery are coordinated and leveraged. The proposed additional space will support programmatic expansion in the areas of brain injury and substance abuse, including opioid use disorder and fetal alcohol spectrum disorder. These strategic areas of research focus have been and will continue to be developed so we can continue to address these health issues, which greatly impact New Mexicans.

Description:
If UNM HSC's application for this funding is successful, it would provide Federal funds to extend local funding for this much-needed, state-of-the-art facility. The expanded space will address an urgent need to bring together researchers from different disciplines, to rapidly move laboratory discoveries into meaningful advances in diagnosis and treatments. The expanded space will allow expansion of our brain and behavioral health and substance abuse research programs to further develop new knowledge and new treatments for disorders affecting many statewide, and nationally.

Impact on UNM/NM/US:
In New Mexico, UNM's strengths in translational neurobiology and the work of faculty, students and staff toward new treatments for disorders of brain and behavioral health and substance abuse would be expanded and UNM HSC further established as a national leader in this field. Significant expansion of interdisciplinary research facilities for brain injury and a spectrum of substance abuse disorders would be of particular benefit to the large numbers of New Mexicans who are disproportionally affected by these problems. Nationally, the new insights and treatments for neurological disorders enabled through New Mexico's state-of-the-art facility would improve lifespan and quality of life for individuals with these often-severe disorders.

Notes

Expansion of Health Extension Regional Offices (HEROs)

Appropriations Bill: Labor/HHS
Federal Agency: Health and Human Services (HHS) / Agency for Healthcare Research and Quality (AHRQ)
Current Federal Funding Level: AHRQ - $338 million
President's FY20 Budget Request: TBD

UNM Contact: Arthur Kaufman, MD, Vice Chancellor for Community Health, UNM Health Sciences Center, 505-272-1936, akaufman@salud.unm.edu

Request:
$1.5 million from AHRQ and the following report language: "The Committee supports the work of AHRQ to better serve the health needs of rural and under-served minorities through such programs as the "Evidence Now" network. We encourage the agency to expand its efforts to include additional health extension program sites connected to public academic health centers in states with high populations of ethnically under-served minorities, rural communities, and tribal populations."

Background:
Health Extension Regional Offices (HEROs) is an established, unique, replicable UNM Health Sciences Center (UNM HSC) model in which HERO agents live and work in their region, linking local health and social priorities with UNM HSC resources in all mission areas—education, service, research and health policy, from all UNM HSC colleges—Nursing, Medicine, Pharmacy and all university campus programs from Education to Architecture & Planning to Business to Law. There are two levels of Extension—regional and individual. HEROs work regionally with local stakeholders in all sectors and address social determinant-affecting policies and programs in their region. HEROs train Community Health Workers (CHWs) who work directly with individual patients in rural and urban communities. HEROs also wear an Area Health Education Center (AHEC) hat to ensure educational resources support health careers of rural and minority youth in their interest in entering a health career. Currently, both AHRQ and HRSA fund the HEROs program.

Rationale:
Academic health centers are anchor institutions in their states, regions and communities. They can have a profound impact on measures of health, but must engage with their communities in newer, more effective ways. The locus of control must be shared outside the campus with communities, and campus resources in all mission areas must be transparent and made available to communities to increase community capacity to identify and address local health-related priorities. Health Extension is increasingly recognized as a vehicle for facilitating these needed changes. Modified from the effective agricultural Cooperative Extension Service, Health Extension also places agents in local communities to link community needs with university resources. Because health is more related to social determinants rather than to the healthcare delivery per se, academic health centers can optimize their impact on community health by reallocating resources "upstream," addressing root causes in the social and economic sphere. This is especially important when the population served is poor, minority, rural, inner city or, in other ways marginalized.

Description:
UNM HSC will invest in long-term engagement with communities, via a permanent presence, fortified by the community-based, community-centered Health Extension agent. The agent will act as an integrator within complex local networks, among the myriad players to comprehensively assess, coordinate, deliver and ensure that the health priorities of the community are identified and met. Hiring local agents, CHWs and staff support will strengthen local economic development and job creation. Community priorities are communicated and reinforced at the academic health center, informing its education, service and research missions. Health Extension will also tie the UNM Health System to local systems of care including community hospitals, federally qualified health centers, regional Medicaid managed care efforts, Indian Health Service and “638” tribal healthcare and the NM Department of Health county offices. Health Extension and its AHEC branch will also link UNM resources with local community colleges, K-12 programs and pipeline development efforts. Health Extension is also taking a lead in certifying CHWs, decentralizing that certification so CHWs do not have to travel long distances for this important educational opportunity. By training a local CHW workforce, the effort brings well-paying jobs in the growing health field into local, low income, ethnically diverse communities.

Impact on UNM/NM/US:
UNM colleges and programs will benefit by the ability to access a robust, statewide network of agents and offices, which will serve as a “core facility” for promoting community-based education, clinical service and research. This will reduce duplicative administrative costs and enhance knowledge of local needs building upon trusted community contacts. New Mexico will benefit by each county and region of the state having the ability to access resources of UNM at their doorstep to address priority health problems and to build local capacity to measurably improve health status, especially among minority, rural, economically challenged and underserved communities. The U.S. will benefit by building a wider, national movement accelerating the impact of public academic health science centers on the measurable improvement of community health through a more effective, sustained community engagement model.

Notes

Project ECHO National Training Center

Appropriations Bill: Labor/HHS
Federal Agency: Health and Human Services (HHS) / Centers for Disease Control and Prevention (CDC)
Federal Agency Program: Capacity Building Assistance CDC-OT18-1802: Strengthening Public Health Systems and Services Through National Partnerships to Improve and Protect the Nation's Health
Current Federal Funding Level: $40 million
President's FY20 Budget Request: TBD

UNM Contact: Sanjeev Arora, Director and Founder, Project ECHO and Distinguished Professor of Medicine, UNM Health Sciences Center, 505-272-2808, sarora@salud.unm.edu

Request:
UNM seeks the following language request for FY20: "The Committee provides $6 million to create a telementoring training center to train academic medical centers and other centers of excellence in the creation of technology-enabled telementoring learning programs that facilitate the dissemination of best practice specialty care to primary care providers and care teams across the country. To ensure access to quality healthcare for underserved populations, there is a need for cost-effective, long-term professional education and support of primary care providers in rural and underserved areas, especially for treatment of complex conditions such as diabetes, addiction (particularly concerning the opioid epidemic), hypertension, obesity, and HIV/AIDS (among others). The Secretary shall favor models of professional education and support that are adaptable to culturally and regionally diverse populations.

Background:
Due to an anticipated national shortage of specialty physicians, care for a wide array of complex conditions will fall to primary care providers and their teams, especially those serving in rural and underserved areas. Technology solutions to increase primary care providers' skill in providing care for complex conditions have focused on webinars and online modules. However, complex learning requires mentorship and embedment of the education experience within a social community. Project ECHO (Extension for Community Health Outcomes) is one such solution: a telementoring model that offers providers the opportunity to participate in virtual learning communities with interdisciplinary specialist teams. ECHO programs have been proven to not only increase provider knowledge and self-efficacy, but also to decrease their sense of professional isolation. 150 academic medical centers and other institutions across the U.S. have adopted the ECHO model to increase community healthcare provider capacity in more than fifty different disease areas and health topics. The passage of the U.S. ECHO Act in late 2016, mandating federal assessment of the ECHO model's potential for nationwide expansion of healthcare workforce capacity, testifies further to the current level of interest in ECHO.

Rationale:
If funded, this program will provide critical support to the ECHO Institute to expand its capacity to train and support partner institutions in developing and maintaining telementoring programs. While the ECHO model is relatively simple, connecting "hub" teams at academic and other centers of excellence with "spoke" provider teams in communities, effectively leveraging it requires training and technical support. This training has been provided by the ECHO Institute at the University of New Mexico Health Sciences Center (UNMHSC) and a handful of sanctioned

training sites across the U.S., and largely supported by private philanthropy. As telementoring becomes more and more established and interest in ECHO grows, demand for training has become too great for philanthropy to sustainably fund.

Description:
Since Project ECHO's founding at UNMHSC in 2003, there are 241 active hubs globally and 150 in the United States operating ECHO programs for more than 70 conditions. In 2018 alone, more than 16,000 individuals across the U.S. participated in ECHO program sessions. This program will expand the ECHO Institute's capacity to provide training in effective implementation of the ECHO model across the country. It will also expand the ECHO Institute's capacity to assist those teams in the launch and support of ECHO programs to nongovernmental components of the public health system such as community-based organizations, community health centers, primary care providers, hospitals, and other nongovernmental target populations as identified by this funding mechanism.

We anticipate that national demand for telementoring programs serving healthcare providers will continue to grow, as the speed of medical innovations and increase in medical knowledge continue to accelerate and pressures on primary care teams escalate, especially in rural and underserved areas. The Opioid ECHO Act of March 2018, a bill to require the Secretary of Health and Human Services to award grants for training health professionals to treat opioid addiction and other substance use disorders using technology-enabled models like ECHO, is one example of this anticipated demand. Another is the Opioid Crisis Response Act of October 2018, which authorized a grant program through the Substance Abuse and Mental Health Services Administration (SAMHSA) to support health centers that use telementoring models such as ECHO to train care teams on best practices in treatment of opioid use disorder.

Impact on UNM/NM/US:
The impact on New Mexico of expanding this program will be significant. ECHO programs have had a proven impact on the capacity of NM healthcare providers. For example, hepatitis C patients of rural providers participating in HCV ECHO programs demonstrated the same cure rates as patients of specialists at UNM, and rates of NM physicians obtaining waivers to provide buprenorphine treatment for opioid use disorder (OUD) increased after the implementation of an ECHO program focused on medication-assisted treatment of OUD. Expansion of the ECHO Institute's capacity will ensure that telementoring programs increasing access to healthcare for NM residents will continue to be developed and launched. Conversely, lessons learned in NM about providing CBA to healthcare workforces located in culturally and geographically diverse, at-risk communities, will benefit the rest of the country as teams from hubs throughout the U.S. receive training at the ECHO Institute. In addition, ECHO Institute trainings and events will have significant impact on the local economy. In 2017, for instance, ECHO Institute orientation and immersion trainings and its global MetaECHO conference generated close to $950,000 in revenue for the Albuquerque area.

Notes

AUTHORIZATION

Pilot Project to Build Under-Represented Minority STEM Faculty at Hispanic-Serving Institutions

Authorization Bill
Federal Agency: National Science Foundation (NSF)
Federal Agency Program Office: NSF FY19: TBD
FY18 $880,000,000 for Education and Human Resources (EHR)
President's FY20 Budget Request: TBD

UNM Contact: Julia Fulghum, Director, ADVANCE at UNM, Associate Dean for Faculty Development and Professor of Chemistry and Chemical Biology, College of Arts & Sciences, 505-277-0004, jfulghum@unm.edu

Request:
UNM requests an authorization in upcoming STEM education legislation to develop a $15 million over three years pilot project through NSF at three-five universities focused on recruiting, retaining, and advancing faculty from under-represented minority groups (URM) in STEM fields at HSI doctoral granting institutions.

Background:
NSF EHR (HRD) has had ADVANCE Institutional Transformation programs focused on institutional changes to contribute to the recruitment/retention/advancement of women STEM faculty. There is not an equivalent program for faculty from URM groups. Additionally, NSF leadership continue to struggle with how to attract and retain URM faculty in the STEM fields at R1 universities. ADVANCE at UNM research indicates that assistant and associate professors from URM groups have different experiences and perspectives than white, non-Hispanic faculty. Some of the factors we have identified as influencing perspectives of university climate can be altered through modifications in institutional practices in combination with additional faculty support and professional development resources.

Rationale:
UNM currently has an ADVANCE IT program (ADVANCE at UNM, https://advance.unm.edu/), focused on women STEM faculty, particularly URM women STEM faculty. ADVANCE at UNM also uses UNM resources to create opportunities that benefit all faculty or that may be particularly important to men and women URM STEM faculty. We are partnering with the academic leadership to change faculty search processes to increase the diversity of all faculty (not just in STEM) and to identify efforts that will contribute to faculty retention, particularly women and URM STEM faculty. UNM has more Hispanic and Native American faculty than most R1 universities. We are in the midst of a Native American faculty hiring initiative and are generally succeeding with diverse faculty hires.

Simultaneously, ADVANCE at UNM is evaluating:

- The impact of leader attitudes towards diversity on the attitudes of faculty in their units
- Differences in perspective and experiences of junior URM faculty vs white, non-Hispanic faculty (through both survey data and interviews)

We have data and knowledge that point to institutional initiatives that should improve the experience and perspective of URM faculty. The ADVANCE IT program provides five years of funding, and we are partway through Year 3. As the leading minority-majority flagship research

institution, UNM will become a nationally-prominent leader in URM STEM faculty success. This program will benefit recruitment and retention of both faculty and students.

Description:
A program focused on recruitment, retention and advancement of URM STEM faculty will build upon the foundation created by the ADVANCE at UNM focus on women STEM faculty. An authorized pilot project will allow us to partner with academic leadership in:

- identifying (and changing) institutional policies and processes that negatively impact the experiences of faculty from URM groups
- increasing a focus on improving department climate through work with department leadership
- piloting a multi-method mentoring model that combines support most faculty need with the development of resources and programs that address specific challenges faced by faculty from URM groups.

The ADVANCE at UNM social science research team will closely monitor, using both quantitative and qualitative approaches, the impact of these efforts.

Impact on UNM/NM/US:
If authorized, this program will result in an increase in the number of URM faculty and the success of URM faculty in STEM departments at UNM, which will provide additional mentors for our diverse student body. Over time, it will lead to more URM STEM faculty in leadership positions at the University. More broadly, we will identify changes in institutional polices and processes and faculty support initiatives that contribute to the success of URM faculty. These will be broadly applicable to other institutions, particularly HSI public research universities.

Notes

SUPPORT

The National Quantum Initiative Act

Appropriations Bill: Commerce, Justice, State; Energy and Water
Federal Agencies: National Institute of Standards and Technology (NIST), National Science Foundation (NSF), Department of Energy (DOE) Collaborative Effort
Current Federal Funding Level: Law authorizes $127.5 million annually at NIST, DOE, and NSF to carry out the 10-year initiative.
President's FY20 Budget Request: TBD

UNM Contact: Ivan H. Deutsch, Regents' Professor and Director, Center for Quantum Information and Control, College of Arts and Sciences, 505-277-8602, ideutsch@unm.edu

Request:
UNM supports the FY20 authorized funding level of $127.5 million for the National Quantum Initiative (NQI) Act (P.L. 115-368).

Background:
The NQI addresses critical national needs in the emerging field of Quantum Information Science. The stated purpose is to support research, development, demonstration, and application of QIS in order to (i) develop a workforce pipeline; (ii) promote the development of multidisciplinary curriculum and research opportunities for QIS at the undergraduate, graduate, and postdoctoral level; (iii) address basic research knowledge gaps; (iv) promote the further development of facilities and centers; and (v) stimulate research on and promote more rapid development of quantum-based technologies.

Congress passed the NQI and it was signed into law in December of 2018. If fully funded, the NQI would strongly impact education, research, and development in UNM, NM, and U.S., as described below.

Rationale:
The University of New Mexico is a pioneer and leader in QIS, with existing centers and growing interest across campus. In addition, the national laboratory ecosystem in NM, particularly DOE labs Sandia and Los Alamos are leaders in QIS and collaborate with UNM in the area. Funding for the NQI would enable UNM to immediately tap into the allocations and establish itself of one of the most important hubs in QIS in the U.S. UNM is strongly positioned to directly impact workforce development, a key priority of the NQI, given UNM's record of accomplishment of producing more than 40 PhDs in QIS who are today's leaders. The NQI calls for five new NSF Research Centers and an additional five DOE Centers). UNM can be competitive, leading and/or participating in these new Centers. This would be a major research and education activity at UNM.

Description:
If funded, UNM would pursue major funding opportunities through calls from the NSF and DOE. Of particular importance would be calls for new national research centers. In the case of the NSF, UNM can benefit from the existing Center for Quantum Information and Control (CQuIC). Indeed, as stated in the National Strategic Overview for Quantum Information Science, the goal is to "Encourage industry and academia to create convergent, trans-sector approaches for diverse workforce development to meet the Nation's QIS needs and use and enhance existing programs to increase the size of the QIS-ready workforce." At UNM, we can do exactly that,

given our existing successful QIS program. In the case of the DOE, UNM would partner with Sandia and Los Alamos National Laboratories to establish a Research Center that would impact a broad community at UNM and beyond.

Impact on UNM/NM/US:
Funding the NQI would significantly impact UNM, NM, and U.S. Establishment of National Centers for QIS, through the NSF and/or the DOE, in alliance with our national laboratory partners, would make New Mexico one of the most important hubs for QIS. Other regions are already forming such alliances. Most notable is the “Chicago Quantum Exchange,” a consortium of the University of Chicago, University of Illinois, Argonne National Lab, and Fermi Lab. With passage of the NQI and a focus on national laboratory/university partnerships, New Mexico can play a leading role. This also has the potential for economic impact on New Mexico. As stated in the Summary of the 2018 White House Summit on Advancing American Leadership in Quantum Information Science “We are on the cusp of a revolution in which quantum information science (QIS) will change the way Americans live, work, and understand the world. QIS can transform industries, create jobs, and yield great benefits for the American people.”

Notes

National Endowment for the Humanities and National Endowment for the Arts

Federal Agencies: National Endowment for the Humanities; National Endowment for the Arts
Current Funding Level: $153.9 million for each program
President's FY20 Budget Request: TBD

UNM Contact: Pamela Cheek, Associate Provost for Curriculum and Assessment, 505-277-4771, pcheek@unm.edu

Request:
$157 million for each program

Background:
The National Endowment for the Humanities and the National Endowment for the Arts are independent federal agencies that are the largest funders of humanities and arts programs in the United States. The Endowments award grants for top-rated proposals that come out of a rigorous external review process. The Endowments have promoted research, preserved cultural resources, aided state arts agencies, and impacted countless students through cultural programs. Every federal dollar states are awarded in grants leveraged an average of $5 at the local and state levels.

Rationale:
In FY20 UNM requests $157 million for both Endowments. The amount represents a modest increase over the expected FY19 amount of $155 million. This increase would allow for more community-based projects and outreach, including partnerships with local, regional, and state museums and cultural institutions. It would also spur further research opportunities that help link the STEM fields with the arts.

Description:
Over the past five years, the College of Fine Arts (CFA) and the College of Arts and Sciences (CAS) have worked in several capacities with the National Endowment for the Arts and the National Endowment for the Humanities. In 2016 alone, a number of faculty have been awarded grants from NEH and NEA providing more than $224,000 of federal funding. CFA faculty have been NEA award recipients across a range of disciplines from community-based projects to research into music education and the developing brain. Current projects include continued studies regarding music training and brain development, as well as a major project to begin data collection to reveal the efficacy of arts interventions in medical treatment and palliative care. Proposals have been submitted for the UNM Music Prep School with continued classes for a range of school-aged children and the further development of our Flamenco program that was identified as a program that exemplifies the highest level of excellence in its rigor, quality of cultural preservation, and accessibility to a broad community.

The College of Arts and Sciences has also been active with the NEH. One faculty member in History has been awarded a prestigious grant aimed at transforming the training and education of humanities Ph.Ds, and another is working on a project related to Latin American migration to urban centers. It is also important to note that many of our programs benefit from the New Mexico Arts and New Mexico Humanities Councils, both of which are funded through the NEA. Presently, the NM Humanities Council has awarded a grant to support the upcoming CFA/Land

Arts conference Decolonizing Nature: Resistance, Resilience, Revitalization. This conference is international in scope and has drawn broad support. Without the NEA and NEH, these important local councils would not exist.

Impact on UNM/NM/US:
NEA and NEH funding affects UNM and New Mexico in two ways. First, it allows faculty to build high engagement practices such as undergraduate research and community engaged learning into the classroom. High engagement practices (HIP) have a documented positive impact on the graduation success of students from traditionally underserved communities. One UNM example of an effective need of national funding is classroom projects that allow students to learn about culture, history, data analysis, and language through oral history projects. Second, funding for faculty humanities research and creative work in the arts contributes to basic knowledge production, enhances the state's profile for creativity, and builds economic impact. One UNM example is the strong integrated Cinematic Arts program, which not only provides the trained workforce for the New Mexico film industry but also generates globally aware content producers. The national impact of NEA and NEH funding to UNM is clear. UNM serves students and employs faculty who have the advantage of living and working in a multicultural and multilingual environment. They thus have a crucial contribution to make to the nation in providing leadership on best teaching, research, communication, ethics and creative practices in a nation that benefits from collaborations among communities.

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