

RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • OCTOBER 2020

Welcome Message

Greetings NETL RWFI stakeholders,

In this month's funding in focus is a funding announcement for the *Industry-University Cooperative Research Centers Program* from the National Science Foundation, the deadline of which is December 16, 2020. There is still also time to apply for the Appalachian Regional Commission/DOE funded *Advanced Welding Initiative*, with a deadline of November 13, 2020. And finally, there is a notice of intent, for an upcoming Funding Opportunity Announcement from the Department of Energy on the topic of the carbon ore, rare earth, and critical minerals workforce (*CORE-CM Initiatives*).

As always, feel free to reach out to us at NETL.RWFI@netl.doe.gov if you have any suggestions for information to present in future E-notes.

– Sincerely, The NETL Regional Workforce Initiative Team

Workforce Funding Announcements

FUNDING SPOTLIGHT



Industry-University Cooperative Research Centers (IUCRC) Program

National Science Foundation, Deadline, December 16, 2020

IUCRCs are formed around research areas of strategic interest to U.S. industry. Industry is defined very broadly to include companies (large and small), startups and non-profit organizations. Principal Investigators form a Center around emerging research topics of current research interest, in a pre-competitive space but with clear pathways to applied research and commercial development. Industry partners join at inception, as an existing Center grows or they inspire the creation of a new Center by recruiting university partners to leverage National Science Foundation (NSF) support. Government agencies participate in IUCRCs as Members or by partnering directly with NSF at the strategic level.

Advanced Welding Workforce Initiative (AWWI)

Appalachian Regional Commission and the U.S. Department of Energy, Deadline, November 13, 2020

The AWWI is a partnership between the Appalachian Regional Commission (ARC) and NETL to increase education and training for advanced technical workers in Appalachia. Launched in 2020, AWWI supports training facilities and programs to develop and implement specialized curricula and learning modules in welding and other advanced manufacturing skills such as robotics and process control. This one-million-dollar investment will prepare workers for in-demand jobs in the region's growing automotive, aerospace, aviation, and petrochemical industries.

Request for Information (RFI) DE-FOA-00002413: Understanding Workforce-Development Assets and Gaps for Technical and Non-Technical Bioenergy Workforce Preparation

U.S. Department of Energy, Deadline, November 2, 2020

The DOE has released an RFI to solicit feedback from industry, academia, research laboratories, government agencies, career counselors, educators, and other biofuels and bioproducts stakeholders. Specifically, Bioenergy Technologies seeks to provide evidence-based workforce development data to help individuals link to existing and new bioenergy workforce development tools. This evidence-based workforce development data will also assist in preparing the nation's current and future workforce for the rapidly and continually changing workforce demands to reskill and upskill in the bioenergy industry. Please see the full text of the RFI DE-FOA-0002413 [here](#). Responses to this RFI must be submitted electronically to bioenergizeme@ee.doe.gov no later than 5:00 p.m. ET on November 2, 2020.

Carbon Ore, Rare Earths and Critical Minerals Initiative for U.S. Basins Notice of Intent

U.S. Department of Energy, Deadline, November 9, 2020

This Notice of Intent (NOI) is for informational purposes only. The DOE is not seeking comments on the information contained in the notice. This is a NOI to issue Funding Opportunity Announcement (FOA) DE-FOA-0002364 titled "Carbon Ore, Rare Earths and Critical Minerals (CORE-CM) Initiative for U.S. Basins." The anticipated objectives of the FOA are to develop and implement basin strategies that will prepare and enable the basin to realize the full economic potential of producing Rare Earth Elements, Critical Minerals, and high-value, nonfuel, carbon-based products. Projects stemming from the FOA are anticipated to provide a foundation for educating the next generation of technicians, skilled workers and STEM professionals needed to implement each basin's strategy.

*Louis Stokes Alliances for Minority Participation (LSAMP)***National Science Foundation, Deadline, November 20, 2020**

The LSAMP program also supports knowledge generation, knowledge utilization, assessment of program impacts and dissemination activities. The program seeks new learning and immediate diffusion of scholarly research into the field. Under this program, funding for STEM educational and broadening participation research activities could include research to develop new models in STEM engagement, recruitment and retention practices for all critical pathways to STEM careers or research on interventions such as mentoring, successful learning practices and environments, STEM efficacy studies, and use of technology to improve learning or student engagement.

*Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR)***National Science Foundation, Deadline, December 4, 2020**

IUSE: EHR seeks to support projects that have high potential for broader societal impacts, including improved diversity of students and instructors participating in STEM education, professional development for instructors to ensure adoption of new and effective pedagogical techniques that meet the changing needs of students, and projects that promote institutional partnerships for collaborative research and development. IUSE: EHR especially welcomes proposals that will pair well with the efforts of *NSF Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES)* to develop STEM talent from all sectors and groups in our society.

*Centers of Research Excellence in Science and Technology (CREST) and Historical Black Colleges & Universities Research Infrastructure for Science and Engineering (HBCU-RISE)***National Science Foundation, Deadline, December 4, 2020**

CREST Center awards provide multi-year support (typically 5-years) for eligible minority-serving institutions that demonstrate a strong research and education base, a compelling vision for research infrastructure improvement, and a comprehensive plan with the necessary elements to achieve and sustain national competitiveness in a clearly defined area of national significance in science or engineering research. Successful Center proposals will demonstrate a clear vision and synergy with the broad goals of the CREST Program and the Human Resource Development Division with respect to development of a diverse STEM workforce. CREST Centers are expected to provide leadership in the involvement of groups traditionally underrepresented in STEM at all levels (faculty, students, and postdoctoral researchers) within the Center. Centers are required to use either proven or innovative mechanisms to address issues such as recruitment, retention and mentorship of participants from underrepresented groups.

*Alliances for Graduate Education and the Professoriate (AGEP)***National Science Foundation, Deadline, December 11, 2020**

AGEP addresses academic workforce development in a broadening participation and institutional capacity building context. Strategic collaborations are encouraged with multiple academic partners, the private sector, non-governmental organizations, professional organizations, government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and other relevant STEM and/or STEM education research organizations. The AGEP program encourages project leadership by, and partnerships with, all types of minority serving institutions, such as majority minority serving institutions, historically black colleges and universities, high Hispanic enrollment institutions, tribal colleges and universities, and institutions serving native Hawaiians, native Pacific Islanders, and/or Alaskan natives.

*Economic Development Research and National Technical Assistance FY18–FY20***Economic Development Agency, Deadline, December 11, 2020**

FY 2018–2020 Notice of Funding Opportunity announcement publishing the Economic Development Agency's application submission requirements and review procedures for applications received under EDA's R&E and NTA programs, authorized under the Public Works and Economic Development Act of 1965, as amended (42 U.S.C. § 3121 et seq.) (PWEDA).

*Minority Serving Institutions (MSI) Partnership Program (MSIPP) – Tribal Education Partnership Program***Department of Energy, Deadline, December 18, 2020**

MSIPP is a vital program within the DOE/NNSA Management and Budget, Learning and Career Management which awards grants to Minority Serving Institutions (MSI) to prepare NNSA's next-generation technical workforce. MSIPP aligns investments in university capacity and workforce development with DOE/ National Nuclear Security Administration (NNSA) mission areas to develop the needed skills and talent for DOE/NNSA's enduring technical workforce and to enhance research and education at MSIs. The program's primary mission is to create and foster a sustainable STEM-pipeline that prepares a diverse workforce of world class talent through strategic partnerships between Minority Serving Institutions and the DOE/NNSA Enterprise. To execute this mission, MSIPP builds a network of nuclear science and engineering ready students through enrichment activities from K-20 to post-doctoral level. Through university-lab consortia partnerships students are exposed to cutting-edge research and activities in their relevant fields. The Tribal Education Partnership Program is a sub-program within MSIPP that specifically awards grants to Tribal College and Universities in support of MSIPP's mission. For more information, search [here](#) under Reference # DE-FOA-0002368.

FY19 FOA for the Office of Naval Research (ONR) Navy Reserve Officers' Training Corps (ROTC) Cybersecurity Training Program

Office of Naval Research, Deadline, December 31, 2020

The ONR seeks a broad range of applications for augmenting existing or developing innovative solutions that directly maintain, or cultivate a diverse, world-class STEM workforce in order to maintain the U.S. Navy and Marine Corps' technological superiority. The goal of any proposed effort must provide solutions that will grow a capable and trained workforce with the skills to defend against emergent cyber and electronic warfare threats. Funding efforts will be targeted primarily toward projects addressing the technical skills taught to university students enrolled in ROTC programs; these ROTC programs are not restricted to any particular Service. While this effort is targeted primarily toward students enrolled in ROTC programs it can also include civilian students.



MiKyung Kang: Skilled Experience Behind NETL's High Performance Computing Resources

Since joining NETL last year, computer scientist MiKyung Kang, Ph.D., has supported the Lab's high-performance computing (HPC) environment across all three of its research facilities, empowering the Lab to continue finding new ways to fuel the nation using the abundant supply of fossil fuels in a sustainable manner. Kang grew up on South Korea's Jeju Island, one of the world's New Seven Wonders of Nature and well known for its beautiful sand beaches and volcanic landscape of craters and cave-like lava tubes. She earned her B.S., M.S., and Ph.D. in computer science and statistics from Jeju National University, inspired by the rapid changes in technology she saw growing up.

NETL News



NETL to Discuss Collaboration Opportunities with Raytheon Technologies Research Center

NETL and multinational technology conglomerate Raytheon Technologies Research Center (RTRC) will discuss opportunities for technical collaboration during an upcoming virtual meeting highlighting the Lab's research in several areas. Scheduled for October 26–28, 2020, the virtual meeting will feature sessions on various topics such as programs within DOE's Office of Fossil Energy (FE), Hydrogen and Sustainability, Advanced Power Generation and Advanced Energy Management. DOE supports research which promotes large-scale, affordable hydrogen (H₂) or high H₂ syngas production from coal with near-zero environmental emissions, as required for use of the H₂ or syngas in a variety of uses including power production with carbon capture or fuels production.



U.S. Department of Energy Issues a Request for Information for Enhanced Weathering Research Opportunities

Today, the U.S. DOE FE, in collaboration with the Office of Energy Efficiency and Renewable Energy, the Office of Science and NETL announced an RFI about “enhanced weathering” research opportunities that could lead to advances in the capture and storage of CO₂. Weathering is nature's process in which rocks are broken down and dissolved over time. The natural breakdown process releases calcium, which can bind to CO₂ and remove it from the atmosphere. Enhanced weathering uses technology or modified land-use approaches to accelerate the decomposition of calcium- and magnesium-rich silicate rocks and increase the rate of CO₂ removal from the atmosphere. It is, in effect, a technology with negative CO₂ emissions. In addition to its CO₂ removal benefits, enhanced weathering can improve soil quality and fertility.



Carbon Dioxide: The New Chemical Feedstock for Valuable Consumer Products

NETL researchers, such as Dominic Alfonso, are using advanced computational tools to repurpose CO₂ from a waste product into chemical building blocks to manufacture fuels and a range of high-value items. The work undertaken by Alfonso and other members of NETL’s Computational Materials and Engineering Team focuses on recycling CO₂ generated by fossil energy plants and other industrial sources into chemicals, alcohols, acids and syngas, which are used to manufacture fuels, polymers and fertilizer. “For more than a century, we have used fossil fuels to produce our electricity and for a variety of other purposes. However, when we extract energy from fossil fuels, we create CO₂, the primary greenhouse gas emitted through human activities,” Alfonso said. “We can address this issue by using CO₂ from factories and power plants as a chemical feedstock. Waste CO₂ emissions can become something you can recycle into valuable products, providing a strong financial incentive to reduce the amount of CO₂ released into the atmosphere,” he added.

time to work and location of work, and income-to-poverty ratio. New to the study this year are trends in the bachelor’s degree field of study and an appendix comparing rural Appalachia to rural areas outside the Appalachian Region. Information is summarized for five Appalachian subregions and five metro designations. The report also compares data from two recent non-overlapping time periods, allowing the study of trends.

COVID-19 in Appalachia

Appalachian Regional Commission

As COVID-19 continues to impact the nation, ARC is carefully monitoring its effects in Appalachia. ARC’s goal during this crisis is to be a resource hub for the Region. Explore our maps, data, and webinars collected from the federal government, the 13 Appalachian state governments, and our partners.

How Can the United States Prepare a Workforce for Advanced Manufacturing Using Robotics?

RAND Corporation

There is much information and misinformation about the future of work as it relates to robots and jobs in manufacturing. The Advanced Robotics for Manufacturing Institute (ARM) engaged the RAND Corporation to review and assimilate publicly available information on this topic with a goal of coalescing data and trends. This research should inform ARM’s membership, others in the robotics industry, and the wider policymaking community in their approaches to managing workforce issues.

Reports and Resources



The Appalachian Region: A Data Overview from the 2014–2018 American Community Survey

Appalachian Regional Commission

This study examines state- and county-level data for the 13 Appalachian states from the 2014–2018 American Community Survey and from U.S. Census Bureau population estimates on topics including population, age, race and ethnicity, housing occupancy and tenure, education, labor force, employment and unemployment, income and poverty, health insurance coverage, disability status, migration patterns, and veteran status. Additionally, data are provided on types of housing units, homeownership, types of living arrangements, travel

DOE STEM Rising



2021 Collegiate Wind Competition (CWC) to Focus on Outreach and Planning for Adaptability

A new academic year is underway, which means a new class of college students is preparing for the 2021 DOE CWC, with winners being announced in June 2021. With the future in mind, the organizers of the CWC have integrated the theme of adaptability into the 2021 challenge, which calls on teams to research, design, and build a turbine for deployment in highly uncertain times, with a large degree of unknown risks and delays.

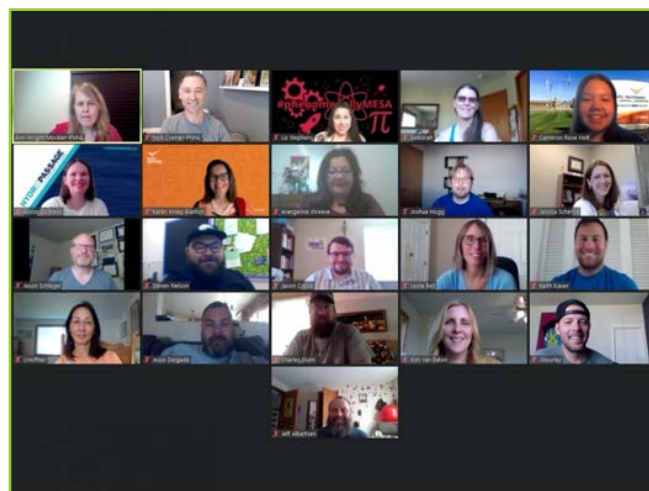
Los Alamos National Laboratory Grants Help Students and Teachers Succeed in Online Learning

Grants totaling \$17,000 from Laboratory operator Triad National Security, LLC to Española and Pojoaque Valley Schools will make online learning a little easier for students and teachers this fall. An award of \$8500 to Española Public Schools (EPS) will be used to purchase iPads for the district's Pre-K programs. "The students are in need of devices that they can use for learning," says Fred Trujillo, superintendent of EPS. "Since much of their interaction is tactile, the interactive screens of the iPads will augment their learning."



Nuclear Science Week Honors Nuclear Science, Technology, Engineering

In recognition of *Nuclear Science Week*, which occurred October 19–23, 2020, Pacific Northwest National Laboratory (PNNL) reflects on more than half a century of advancing nuclear science for the nation's energy, environment, and security frontiers. "Our scientists and engineers create new frontiers of nuclear science, continuing our nuclear heritage, to tackle bold challenges across a diverse portfolio," said *Chris Deeney*, chief science and technology officer for the PNNL National Security Directorate and fellow in the Institute of Electrical and Electronics Engineers Nuclear and Plasma Society.



STEM Teacher-Scientist Partnership Program Impacts Local Community

Each summer, PNNL invites middle and high school STEM teachers from nearby underrepresented and underserved rural communities from the Mid-Columbia Basin region to participate in the *Teacher-Scientist Partnership*, a unique professional development opportunity. During these 35–40-hour experiences, participants work side-by-side with PNNL scientists, engineers, and *STEM education specialists* to tackle real-world, scenario-based, scientific challenges that are aligned with PNNL's research and connected to Washington State science and learning standards.

ABOUT NETL



NETL, owned and operated by DOE, is one of the Department's 17 National Laboratories. NETL supports DOE's mission to advance the national, economic, and energy security of the United States.

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