RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • APRIL 2022

Welcome Message

Greetings NETL RWFI stakeholders,

This month's funding in focus is a funding opportunity from the National Science Foundation focused on the *future of Manufacturing* with a deadline of May 10, 2022.

We will also host an *Energy 101 Webinar* this month on April 28, 2022, from 11:00 a.m. –12:00 p.m. EDT on NETL's efforts around cybersecurity and using blockchain to secure the nation's energy infrastructure. Registration is free but limited.

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.

Attached to this email is a hyperlinked PDF version of this note. If you would like to unsubscribe, please reply "unsubscribe" to this email.

– Sincerely, The NETL Regional Workforce Initiative Team

Workforce Funding Announcements

FUNDING SPOTLIGHT

Future Manufacturing

National Science Foundation, Deadline, May 10, 2022

The goal of the Future Manufacturing initiative is to support fundamental research and education of a future workforce to overcome scientific, technological, educational, economic, and social barriers in order to catalyze new manufacturing capabilities that do not exist today. Future Manufacturing imagines manufacturing decades into the future. It supports research and education that will enhance U.S. leadership in manufacturing by providing new capabilities for established companies and entrepreneurs by improving our health, quality of life, and national security; expanding job opportunities to a diverse STEM workforce; and reducing the impact of manufacturing on the environment. At the same time, Future Manufacturing enables new manufacturing that will address urgent social challenges arising from climate change, global pandemics and health disparities, social and economic divides, infrastructure deficits of marginalized populations and communities, and environmental sustainability.

Advancing Innovation and Impact in Undergraduate STEM Education at Two-year Institutions of Higher Education

National Science Foundation, Deadline, May 2, 2022

The Education and Human Resources Directorate of the National Science Foundation (NSF) seeks to significantly enhance its support for research, development, implementation, and assessment to improve STEM education at the nation's two-year colleges. NSF encourages bold, potentially transformative projects that address immediate challenges facing STEM education at two-year colleges and/or anticipate new structures and functions of the STEM learning and teaching enterprise. This program description is a targeted approach for advancing innovative and evidence-based practices in undergraduate STEM education at two-year colleges. It also seeks to support systemic approaches to advance inclusive and equitable STEM education practices. Projects will be expected to build on prior fundamental and/or applied research in STEM education and provide theoretical and empirical justification for proposed projects as needed. Projects will also be expected to be research-informed and to result in field-tested outcomes and products that enhance STEM teaching and learning at two-year colleges. Potential Outcomes of Interest: NSF is interested in projects with potential outcomes that include but are not limited to making systemic improvements in STEM education; promoting diversity, equity, and inclusion; and/or mitigating the disproportionate impact of the COVID-19 pandemic on two-year colleges.

Workforce Innovation and Opportunity Act (WIOA), Indian and Native American Programs — Employment and Training Grants

Department of Labor, Deadline, May 6, 2022

This Announcement solicits applications for the Indian and Native American Employment and Training Program authorized under Section 166 of WIOA. The purpose of this program is to support employment and training activities for Indian, Alaska Native, and Native Hawaiian individuals in order to: develop more fully the academic, occupational, and literacy skills of such individuals; make such individuals more competitive in the workforce and equip them with the entrepreneurial skills necessary for successful self-employment; and promote the economic and social development of Indian, Alaska Native, and Native Hawaiian communities in accordance with the goals and values of such communities.

FY22 Department of Defense (DoD) Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MSI)

Department of Defense, Deadline, May 6, 2022

This Funding Opportunity Announcement (FOA) aims to enhance research programs and capabilities in scientific and engineering disciplines critical to the national security functions of DoD; enhance

the capacity of HBCU/MSI to participate more fully in all DoD research programs and activities; increase the number of graduates, including underrepresented minorities, in STEM fields important to the defense mission; and encourage commitments by the eligible institutions to invest time and resources that will elevate their standing from R2 status to R1 status commensurate with the Carnegie Classification of Institutions of Higher Education.

FY22 STEM Program

U.S. Air Force, Office of Science, Deadline, May 13, 2022

The Air Force Office of Scientific Research (AFOSR) seeks a broad range of applications for augmenting existing and/or developing innovative solutions that directly maintain and/or cultivate a diverse, world-class STEM workforce to maintain the U.S. Air Force and Space Force's technological superiority. These proposed efforts must provide solutions that establish, build, and/or maintain STEM educational pathways and workforce opportunities for diverse U.S. citizens directly relevant to AFOSR science and technology areas.

Training-based Workforce Development for Advanced Cyberinfrastructure (CI)

National Science Foundation, Deadline, May 16, 2022

This solicitation calls for innovative, scalable training, education, and curriculum/instructional materials, along with deeper incorporation of CI professionals into the research enterprise — targeting one or more of the solicitation goals — to address emerging needs and unresolved bottlenecks in Science and Education research workforce development, from the postsecondary level to active researchers to CI professionals. The funded activities, spanning targeted, multidisciplinary communities, should lead to transformative changes in the state of research workforce preparedness for advanced CI-enabled research in the short- and long-term. This solicitation also seeks to broaden CI access and adoption by increasing adoption of advanced CI and of computational and data-driven methods to a broader range of S&E disciplines and institutions, enhancing the incorporation of CI professionals into the research enterprise (highlighting the value of those professionals in S&E research), and effectively utilizing the capabilities of individuals from a diverse set of underrepresented groups.

Tribal Colleges and Universities Program (TCUP)

National Science Foundation, Deadline, June 1, 2022

The TCUP provides awards to federally recognized Tribal Colleges and Universities, Alaska Native-serving institutions, and Native Hawaiian-serving institutions to promote high quality science. Subjects include sociology, psychology, anthropology, linguistics, economics and bioeconomics, statistics, and other social and behavioral sciences; natural sciences; computer science — including, but not limited to, artificial intelligence, quantum information science, and cybersecurity; STEM; and STEM education, research, and outreach. Support is available to TCUP-eligible institutions for transformative capacity-building or community engagement projects through Instructional Capacity Excellence in TCUP Institutions; Targeted STEM Infusion Projects, TCUP for Secondary and Elementary Teachers in STEM; Tribal College and University Enterprise Advancement Center; Cyberinfrastructure Health, Assistance, and Improvements; and Preparing for TCUP Implementation. Collaborations led by TCUP institutions that involve non-TCUP institutions of higher education are supported through TCUP Partnerships, with the participation of other NSF programs to support the work of non-TCUP institutions. Finally, research studies that further the scholarly activity of individual faculty members are supported through Small Grants for Research.

Strengthening Community Colleges (SCC2) Training Grants

Department of Labor, Deadline, June 2, 2022

This FOA solicits applications for the second round of SCC2 Training Grants. For the purposes of this FOA, this training initiative has two parts: the standard program grants will be referred to as SCC2 Program Grants, and the additional evaluation funds will be referred to as Additional SCC2 Evaluation Funding. The purpose of this program is to address two inter-related needs: 1) to increase the capacity and responsiveness of community colleges to address identified equity gaps, and 2) to meet the skill development needs of employers in in-demand industries and career pathways, as well as the skill development needs of underserved and underrepresented workers.

Office of Postsecondary Education: Higher Education Programs: Developing Hispanic-Serving Institutions (DHSI) Program, Assistance Listing Number 84.031S

Department of Education, Deadline, June 6, 2022

The DHSI Program provides grants to assist Hispanic Serving Institutions (HSIs) with expanding educational opportunities for, and improving the academic attainment of, Hispanic students. The DHSI Program grants enable HSIs to expand and enhance the academic offerings, program quality, faculty quality, and institutional stability of colleges and universities that are educating the majority of Hispanic college students and help large numbers of Hispanic students and other low income individuals complete postsecondary degrees.

Industry-University Cooperative Research Centers (IUCRC) Program

National Science Foundation, Deadline, June 8, 2022

The IUCRC program catalyzes breakthrough pre-competitive research by enabling close and sustained engagement between industry innovators, world-class academic teams, and government agencies. IUCRCs help industry partners and government agencies connect directly and efficiently with university researchers to achieve three primary objectives: 1) conduct high-impact research to meet shared and critical industrial needs in companies of all sizes; 2) enhance U.S. global leadership in driving innovative technology development; and 3) identify, mentor, and develop a diverse, highly skilled science and engineering workforce.

Science of Learning and Augmented Intelligence (SL)

National Science Foundation, Deadline, July 13, 2022

SL supports potentially transformative research that develops basic theoretical insights and fundamental knowledge about principles, processes and mechanisms of learning, and about augmented intelligence — how human cognitive function can be augmented through interactions with others, contextual variations, and technological advances.

CyberCorps Scholarship for Service

National Science Foundation, Deadline, July 15, 2022

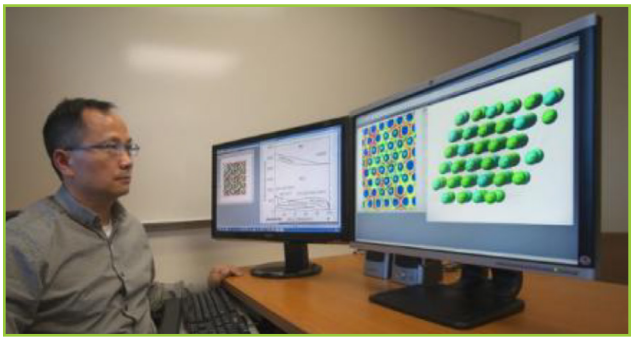
Cyberspace has transformed the daily lives of people throughout the world. Society's overwhelming reliance on cyberspace, however, has exposed the system's fragility and vulnerabilities: corporations, agencies, national infrastructure, and individuals continue to suffer cyber-attacks. Achieving a truly secure cyberspace requires addressing both challenging scientific and engineering problems involving many components of a system, and vulnerabilities that stem from human behaviors and choices. Examining the fundamentals of security and privacy as a multidisciplinary subject can lead to fundamentally new ways to design, build, and operate cyber systems, protect existing infrastructure, and motivate individuals to learn about cybersecurity. The Cybersecurity Enhancement Act of 2014, as amended by the National Defense Authorization Acts for 2018 and 2021, authorizes the National Science Foundation, in coordination with the U.S. Office of Personnel Management and the Department of Homeland Security, to offer a scholarship program to recruit and train the next generation of American cybersecurity professionals to meet the needs of the cybersecurity mission for federal, state, local, and tribal governments.

Agriculture and Food Research Initiative Sustainable Agricultural Systems (SAS) Applications

Department of Agriculture, Deadline, July 28, 2022

SAS Request for Applications must focus on approaches that promote transformational changes in the U.S. food and agriculture system. The National Institute of Food and Agriculture seeks creative and visionary applications that take a systems approach for projects which are expected to significantly improve the supply of affordable, safe, nutritious, and accessible agricultural products, while fostering economic development and rural prosperity in the United States. These approaches must demonstrate current needs and anticipate future social, cultural, behavioral, economic, health, and environmental impacts. Additionally, the outcomes of the work being proposed should result in societal benefits, including promotion of rural prosperity and enhancement of quality of life for all those involved in food and agricultural value chains from production to utilization and consumption.

NETL News



NETL Showcases Expertise in Computational Design for Rapid Alloy Development

NETL leverages its expertise in computational modeling to advance the design and improve the capability to predict the performance of alloys in harsh environments needed to reduce the environmental impact of energy production. Several studies by researchers at the Lab and others affiliated with the NETL-led eXtremeMAT consortium, which focuses on developing next-generation computational models for design and performance prediction of alloys in extreme operating conditions, are featured in a special edition of JOM, The Journal of The Minerals, Metals & Materials Society devoted to computational design of alloys for energy technologies.

DOE Regional Carbon Management Applicant Education Workshop in Columbus to Support Bipartisan Infrastructure Law

NETL and the DOE's Office of Fossil Energy and Carbon Management (FECM) will host the first in-person Regional Carbon Management Applicant Education Workshop on Wednesday, April 13, 2022, in Columbus, OH. This workshop supports implementation of the Bipartisan Infrastructure Law and will target potential applicants interested in developing various carbon management projects. The Lab will participate in several panel discussions scheduled throughout the day. Among these is the participation of NETL's Briggs White, who also serves as deputy executive director of the White House's Interagency Working Group (IWG) on Coal and Power Plant Communities and Economic Revitalization. The IWG was established by President Biden's Executive Order on Tackling the Climate Crisis at Home and Abroad and works to catalyze economic revitalization, create good-paying union jobs and support especially hard-hit coal, oil and gas and power plant communities across the country. White will discuss the latest job opportunities emerging in the nation's energy sector.

NETL Upgrades computerized tomography (CT) Scanning Capabilities to Peer Deep Inside Rock Cores

NETL has significantly upgraded its CT scanning technology to provide researchers with an enhanced tool to look at dynamic processes inside rock cores. "CT scanning is among the unique capabilities we have refined at NETL to determine, for example, under what conditions CO_2 generated by fossil energy production and industrial processes can be injected underground safely and permanently stored in rock formations deep within the subsurface to reduce emissions of greenhouses gases into the atmosphere," said Dustin Crandall, Ph.D., an NETL research engineer. NETL is positioned to take its expertise in

geologic CT scanning to the next level and will soon begin producing higher resolution images of microstructures within rock cores in a significantly shorter period of time. The technology to accomplish these goals is the 11,646-pound TESCAN DynaTOM CT scanner, the first to be installed in the United States, which arrived at NETL's Center for Advanced Imaging and Characterization in Morgantown, WV, a year ago.

NETL NEWS

DOE Announces $4 Million for Improving Hydrogen Turbine Performance and Reducing Hydrogen-based Energy Costs

The FECM announced $4 million in funding to advance the development of ceramic-based materials to improve the efficiency of hydrogen-fueled turbines that may one day be used in clean power plants. Electricity made from clean hydrogen — whether produced from renewable resources or from fossil or carbon-based waste resources, coupled with pre-combustion carbon capture and durable storage — will help in achieving the Biden-Harris Administration's goal of a zero-carbon U.S. power sector by 2035.

NETL Releases April 2022 Edition of the Carbon Capture Newsletter

Read the latest edition of the Carbon Capture Newsletter to learn about recent developments in the U.S. DOE/NETL Carbon Capture Program. The Carbon Capture Program is developing the next generation of advanced CO_2 capture technologies that can provide step-change reductions in both cost and energy requirements over currently available technologies. The Carbon Capture Program focuses on a broad portfolio of projects, including post- and pre-combustion capture to reduce carbon emissions from fossil fuel-based power generation and industrial sources. The program is also developing a wide array of approaches to remove CO_2 that has accumulated in the atmosphere, such as direct air capture with durable storage, biomass carbon removal and storage, and enhanced mineralization.

NETL Hydrogen Research, Sites Toured Virtually by Pittsburgh Memorandum of Understanding and European Partners

NETL advanced research technologies and cutting-edge facilities were demonstrated for a contingent of NETL partners from the Pittsburgh region including representatives from Dortmund, Germany, when they visited western Pennsylvania on Monday, April 4, 2022, to engage with the lab and other regional stakeholders. The Sister Cities Association of Pittsburgh connects the Pittsburgh region with international partner cities to develop mutually beneficial relationships in the areas of commerce, education and culture. Four representatives from Dortmund and one representative from the European Union met NETL's Nate Weiland, senior fellow for Energy Conversion Engineering, who led a virtual tour of NETL lab facilities to highlight the lab's research and development efforts focused on hydrogen production.

April Edition of the Strategic Systems Analysis and Engineering (SSAE) Newsletter Released

The April 2022 edition of the SSAE Newsletter provides updates about recent research initiatives undertaken within NETL's SSAE directorate. Click here to access this latest edition and learn about activities that SSAE is leading to gain insights into new energy concepts, support the analysis of energy system interactions, and advance its capabilities.

NETL Events and Meetings

NETL RWFI Energy 101: Blockchain R&D For Improved Cybersecurity

Webinar, Thursday, April 28th, 11:00 a.m. –12:00 p.m. EDT

Did you know that NETL as part of its crosscutting research program is leading a cutting-edge cybersecurity project utilizing unique subject matter expertise and technology to overcome some of the biggest issues in making a safer and more secure environment for our nation's energy infrastructure? In this month's Energy 101, we will learn about how NETL is using blockchain technology to secure the U.S. energy sector through an effort called Blockchain for Optimized Security and Energy Management (BLOSEM). BLOSEM is a multi-

lab collaboration, established to develop energy-sector guidance, standardized metrics, and testing environments for technology maturation of novel blockchain-based concepts for device security, secure communications, and grid resilience. This project is seeking to build out a testing infrastructure to evaluate blockchain-based concepts that may be useful for industry as a resource for evaluating and testing use cases. The draft agenda can be found *here*, and click *here* to register (registration free but limited).

Reports and Resources

DOE Seeks Public Input to Drive the Cost-effective Implementation of Building Energy Codes for Greater Efficiency, Resilience, and Cost Savings

Department of Energy

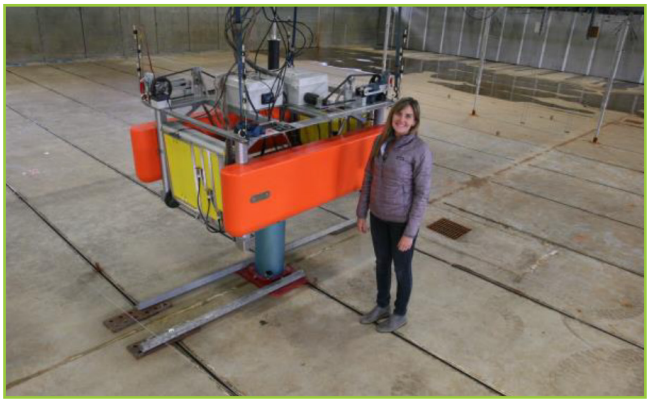
The U.S. DOE has announced a Request for Information to collect feedback from stakeholders to inform the implementation of President Biden's Bipartisan Infrastructure Law's $225 million in funding for improved building codes. This funding will assist state agencies and partners improve the energy efficiency of America's building stock through code upgrades that will ensure more efficient and resilient buildings. Reducing emissions from residential and commercial buildings is crucial to DOE's strategy for achieving President Biden's goal of a 100% clean electrical grid by 2035 and net-zero carbon emissions by 2050.

Net-zero innovation hubs: Three priorities to drive America's clean energy future

Brookings Institute

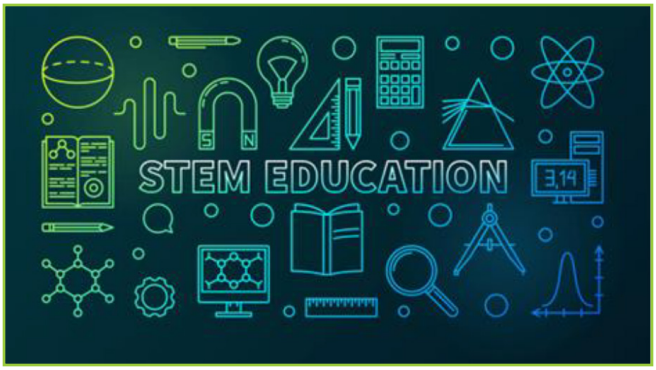
As the largest per capita emitter of CO_2, the U.S. has a unique obligation and opportunity to lead the way through a transformative investment in clean energy research and development. The recent Bipartisan Infrastructure Law is a starting point, authorizing $65 billion for clean energy and grid investments and another $7.5 billion for a national network of electric vehicle charging stations.

DOE STEM Rising



Women @ Energy: Kelley Ruehl

Learn why Kelley loves her job as an Energy Water Systems Integration mechanical engineer at Sandia National Laboratories.



In the Zone at Waste Management Symposia 2022

DOE has been increasing its STEM and workforce content at the Waste Management Symposia year after year.

Waste Isolation Pilot Plant Contractor Supports Student Effort to Improve School Bus Safety

The wheels on the bus go round and round, but soon you can see just where in town they are going.

For Women's History Month, NREL Celebrates the Powerful Women of Water Power

This article is the first of two in a Women's History Month series that showcases a handful of the National Renewable Energy Laboratory's outstanding women researchers in water power.

ABOUT NETL

NATIONAL ENERGY TECHNOLOGY LABORATORY

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.

1450 Queen Avenue SW
Albany, OR 97321-2198
541-967-5892

3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880
304-285-4764

626 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236-0940
412-386-4687

Program staff are also located in
Houston, Texas and Anchorage, Alaska

WEBSITE: www.netl.doe.gov

CONTACTS

Anthony Armaly
NETL RWFI Federal Coordinator
412-386-6040
Anthony.Armaly@netl.doe.gov

Kirk Gerdes
Regional Workforce Initiative Coordinator
304-285-4342
Kirk.Gerdes@netl.doe.gov

Mike Knaggs
Associate Director of Partnerships
304-285-4926
Michael.Knaggs@netl.doe.gov

Matthew Garcia
Regional Workforce Initiative Consultant
956-314-0645
Matthew.Garcia@netl.doe.gov