

# RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • JUNE 2021

## Welcome Message

Greetings NETL RWFI stakeholders,

This month's funding in focus is from the *U.S. Department of Agriculture's Rural Cooperative Development Grant* Program. The RCDG grant strives to improve economic conditions of rural areas by assisting individuals or entities in the startup, expansion or operational improvement of rural cooperatives and other business entities.

As always, feel free to reach out to us at [NETL.RWFI@netl.doe.gov](mailto: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



### *Rural Cooperative Development Grant (RCDG)*

**U.S. Department of Agriculture, Deadline, Aug. 10, 2021**

The primary objective of the RCDG program is to improve the economic condition of rural areas by assisting individuals or entities in the startup, expansion or operational improvement of rural cooperatives and other business entities. Grants are awarded competitively on an annual basis to Rural Cooperative Development Centers who in turn provide technical assistance to individuals and entities.

### *Racial Equity in STEM Education*

**National Science Foundation, Deadline, July 13, 2021**

Persistent racial injustices and inequalities in the United States have led to renewed concern and interest in addressing systemic racism. The National Science Foundation (NSF) Directorate for Education and Human Resources (EHR) seeks to support bold, ground-breaking, and potentially transformative projects addressing systemic racism in STEM. Proposals should advance racial equity in STEM education and workforce development through research — both fundamental and applied — and practice.

### *Improving Undergraduate STEM Education: Education and Human Resources (IUSE: EHR)*

**National Science Foundation, Deadline, July 21, 2021**

The IUSE: EHR is a core NSF STEM education program that seeks to promote novel, creative, and transformative approaches to generating and using new knowledge about STEM teaching and learning to improve STEM education for undergraduate students. The program is open to application from all institutions of higher education and associated organizations. NSF places high value on educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate public. In pursuit of this goal, IUSE: EHR supports projects that seek to bring recent advances in STEM knowledge into undergraduate education, that adapt, improve, and incorporate evidence-based practices into STEM teaching and learning and lay the groundwork for institutional improvement in STEM education. In addition to innovative work at the frontier of STEM education, this program also encourages replication of research studies at different types of institutions and with different student bodies to produce deeper knowledge about the effectiveness and transferability of findings.

### *CyberCorps: Scholarship for Service (SFS)*

**National Science Foundation, Deadline, July 28, 2021**

The goals of the CyberCorps: SFS program are aligned with the U.S. strategy to develop a superior cybersecurity workforce. These goals are to increase the quantity of new entrants to the government cyber workforce, to increase the national capacity for the education of cybersecurity professionals, to increase national research and development capabilities in critical information infrastructure protection, and to strengthen partnerships between institutions of higher education and relevant employment sectors. The SFS program welcomes proposals to establish or to continue scholarship programs in cybersecurity. All scholarship recipients must work after graduation for a federal, state, local, or tribal government organization in a position related to cybersecurity for a period equal to the length of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. Such evidence can include Accreditation Board for Engineering and Technology accreditation in cybersecurity; a designation by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Cyber Defense Education, Cyber Operations, or Research; or equivalent evidence documenting a strong program in cybersecurity.

### *Historically Black Colleges and University (HBCU) Research Center of Excellence*

**Department of Housing and Urban Development, Deadline, July 29, 2021**

Eligible organizations include all HBCUs as defined in Section 322 of the Higher Education Act of 1965. Only HBCUs are eligible to compete for, or receive, awards made under this announcement. The Higher Education Act of 1965, as amended, defines an HBCU as any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of Black Americans and that is accredited by a nationally recognized accrediting agency or association determined by the Secretary of Education to be a reliable authority as to the quality of training offered or is, according to such an agency or association, making reasonable progress toward accreditation. Individuals, foreign entities, and sole proprietorship organizations are not eligible to compete for, or receive, awards made under this announcement.

### *Innovative Technology Experiences for Students and Teachers (ITEST)*

**National Science Foundation, Deadline, Aug. 13, 2021**

ITEST is an applied research and development (R&D) program providing direct student learning opportunities in pre-kindergarten through high school. The learning opportunities are based on innovative use of technology to strengthen knowledge and interest in STEM and information and communication technology (ICT) careers. To achieve this purpose, ITEST supports projects that engage students in technology-rich experiences that: (1) increase awareness and interest of STEM and ICT occupations; (2) motivate students to pursue appropriate education pathways to those occupations; and (3) develop STEM-specific disciplinary content knowledge and practices that promote critical thinking, reasoning, and communication skills needed for entering the STEM and ICT workforce of the future.

### *Alliances for Graduate Education and the Professoriate (AGEP)*

**National Science Foundation, Deadline, Aug. 24, 2021**

Improving equity and inclusion is critical to advancing STEM faculty, educating America's future STEM workforce, fostering individual opportunity, and contributing to a thriving U.S. economy. The NSF AGEP program, therefore, seeks to fund grants that advance and enhance the systemic factors that support equity and inclusion and, consequently, mitigate the systemic inequities in the academic profession and workplace. The AGEP program goal to increase the number of historically underrepresented minority faculty is bolstered by the National Science Board's "Vision 2030: Vision for the Future."

### *Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI)*

**National Science Foundation, Deadline, Aug. 25, 2021**

The goals of the HSI program are to enhance the quality of undergraduate STEM education and to increase the recruitment, retention, and graduation rates of students pursuing associate's or baccalaureate degrees in STEM. Achieving these, given the diverse nature and context of the HSIs, requires additional strategies that support building capacity at HSIs through innovative approaches.

The first approach is to incentivize institutional and community transformation, and the second to promote fundamental research that is focused on engaged student learning, regards what it takes to diversify and increase participation in STEM effectively, and improves our understanding of how to build institutional capacity at HSIs. Intended outcomes of the HSI Program include broadening participation of students that are historically underrepresented in STEM and expanding students' pathways to continued STEM education and integration into the STEM workforce.

### *Rural Energy for America Program — Renewable Energy Systems and Energy Efficiency Improvement*

**U.S. Department of Agriculture, Deadline, Sept. 30, 2021**

Eligible applicants are agricultural producers and rural small businesses. All agricultural producers, including farmers and ranchers, who gain 50% or more of their gross income from the agricultural operations are eligible. Small businesses that are located in a rural area can also apply. Rural electric cooperatives may also be eligible to apply. To be eligible, applicants must be individuals or entities at least 51 percent owned by persons who are either: 1) citizens of the United States, the Republic of Palau, the Federated States of Micronesia, the Republic of the Marshall Islands, or American Samoa; or 2) legally admitted permanent residents residing in the United States. The project must be to conduct a feasibility study for a renewable energy system. Eligible technologies include projects that produce energy from wind, solar, biomass, geothermal, hydro power and hydrogen-based sources. All projects must be located in a rural area and must be owned by the applicant. Each applicant must have, or obtain, the legal authority necessary to carry out the purpose of the grant.

## NETL News



### *U.S. DOE Invests \$8M for Projects to Develop Algae-Based Technologies to Capture Carbon Dioxide (CO<sub>2</sub>) for Use in Products*

Today, the U.S. DOE's Office of Fossil Energy and Carbon Management (FECM) announced \$8M in federal funding for four projects to develop and test technologies that capture and utilize CO<sub>2</sub> from power systems or other industrial sources to create valuable products and services, biomass and bi-products. Using algae, the selected projects will develop conversion technologies to decrease emissions, helping to reach the Biden-Harris Administration's goal of net zero emissions by 2050. "Capturing and utilizing CO<sub>2</sub> from sources across power and industrial sectors is critical to fighting climate change — and to creating new jobs and opportunities in hard hit communities across the country," said Dr. Jennifer Wilcox, Acting Assistant Secretary for Fossil Energy and Carbon Management. "These projects represent an important step in those efforts."



**NETL Engages with Organizations to Develop Affordable Negative Emissions Technologies**

In the continuing effort to reach the Administration’s net-zero carbon emission goals in the power sector by 2035 and the broader economy by 2050, NETL is advancing emerging CO<sub>2</sub> capture research areas such as direct air capture (DAC) and bioenergy with carbon capture and storage (BECCS) by engaging in extramural collaborations with the private sector, academia and other national laboratories. “DAC with carbon storage and BECCS are both negative emission technologies,” said Krista Hill, federal project manager on the carbon capture team. “This means that carbon dioxide is both removed from the atmosphere and then geologically stored. In DAC, CO<sub>2</sub> is pulled directly from the air, whereas BECCS involves the use of biomaterials that naturally remove CO<sub>2</sub> during their life cycle and then are burned to generate power in systems equipped with carbon capture and storage.”



**NETL-Led Projects Prioritize REEs and other Critical Minerals Extraction and Economic Revitalization**

The U.S. DOE’s Office of Fossil Energy and Carbon Management has awarded nearly \$18M to advance eight projects to extract REEs and other Critical Minerals (CMs) from materials. These projects will also support revitalization in regions across the country that face economic adversity due to declines in coal and power plants communities. Each of the eight projects had previously worked with DOE to develop a conceptual design of a technology to produce 1–3 metric tons per day of mixed rare earth oxides or rare earth salts and other CMs from mostly coal-based sources. REEs and CMs are vital in the construction of medical equipment, energy components, defense technologies, modern electronics and a host of other consumer goods.



**Idaho National Laboratory (INL) Developing New Rare Earth Element (REE) Sensing with NETL**

With NETL funding, researchers at INL, Rutgers, Arizona State University, OLI Systems and Lawrence Livermore National Laboratory are developing new sensing methods of detecting REEs contained within America’s fossil energy resources using luminescent detection. REEs include the lanthanide elements along with scandium and yttrium. These elements are used in a wide variety of strategic and economically vital industries such as energy, defense, medical technology and consumer electronics. With most existing REE supplies controlled by foreign countries, the U.S. DOE and NETL have funded numerous research projects that will create a domestic REE supply chain using the nation’s historic energy resources. INL sought to develop a new simple, sensitive and rapid approach for detecting REEs in any kind of carbon-based solid or liquid. This approach had to be applicable to diverse chemical and mineral matrices that will effectively detect REEs in aqueous solutions at less than one part per million and distinguish it between multiple REEs co-occurring in the same sample.



**NETL’s Energy Data eXchange (EDX) Provides the Data and Tools for the Transition to a Clean Energy Economy**

NETL’s EDX has served as a virtual platform for the public curation of research data and tools for more than a decade, bringing together researchers from across the U.S. DOE’s FECM. Now, as the Biden Administration begins the transition to a clean energy economy, the data and models available through EDX are helping shape this new future where federal leadership will partner with power plant communities to create good-paying union jobs, spur economic revitalization, mediate environmental degradation and support energy workers.



**NETL Advancing Decarbonization Through Direct Air Capture**

NETL researchers are using analytical tools and modeling to determine the efficiency and cost effectiveness of technologies that can pull CO<sub>2</sub> from ambient air and help reduce greenhouse gas levels in Earth’s atmosphere. “DAC systems are essentially what plants and trees do every day through photosynthesis, except DAC technology can do it much faster, with a smaller land footprint, and deliver extracted CO<sub>2</sub> in a pure, compressed form that can then be stored underground or reused,” said Tim Fout, a member of NETL’s Energy Process Analysis Team of the Strategic Systems Analysis and Engineering directorate. NETL is well-positioned to lead the development of DAC technology. The Lab has been instrumental in advancing research to capture CO<sub>2</sub> from the flue gas streams produced by power plants and other industries and store it permanently and safely in deep underground complexes and geologic reservoirs or use it as a feedstock to produce higher-value products such as chemicals and plastics.

particularly within the following areas: skilled trades; technology innovation and commercialization; and upper-level management of high-growth industries such as renewable energy development. These demographic groups have faced additional setbacks since the onset of the COVID-19 pandemic in the United States, which has disproportionately impacted Black and Hispanic energy workers.

**LinkedIn June 2021 Workforce Report**

The LinkedIn Workforce Report is a monthly report on employment trends in the U.S. workforce. It is divided into two sections: a national section that provides insights into hiring, skills gaps, and migration trends across the country and a city section that provides insights into localized employment trends in 20 of the largest U.S. metro areas.

**Key Insights**

- Nationally across all industries, hiring in the United States dropped slightly and was 1.5% lower in May 2021 compared to April 2021. However, national hiring was 158.4% higher in May 2021 compared to May 2020, the low point of hiring during the pandemic.
- The industries with the most notable hiring shifts month-to-month in May were Recreation & Travel (9.1% higher), Entertainment (7.2% higher), and Retail (5.2% higher). These in-person industries were some of the hardest hit by the pandemic and have been experiencing greater than 4% month-to-month growth for each of the past four months.
- The cities with the most notable hiring shifts month-to-month in May were Seattle (7.8% higher); Cleveland-Akron (5.2% higher); and Dallas-Ft. Worth (5% higher). Out of the 20 cities tracked, 10 are hiring at or above their pre-COVID level in February 2020, down from 12 in April.

**Reports and Resources**



**Diversity in the U.S. Energy Workforce**

**National Association of State Energy Offices**

Energy technology innovation, private- and public-sector investments, and state, local, and federal energy and climate policies have propelled economic development and supported the creation of millions of jobs across the U.S. economy. Yet data from an array of analyses suggest that these benefits have not extended equitably across the energy sector workforce. Currently the composition of this workforce lags on gender, ethnic and racial minority representation,

**DOE STEM Rising**



**Women of Quantum Computing Go Tiny in Big Ways**

In the Computational Chemistry, Materials, and Climate Group at Lawrence Berkeley National Laboratory, the future of quantum information science is being driven in part by a group of women scientists who see that future — and their personal futures along with it — as quite bright. Early in their careers and coming from a variety of academic fields, these women comprise more than half of the postdoctoral researchers in the group, a rarity in computing science. But if they have their way, gender parity in their field won’t be an oddity much longer.



***Oak Ridge students, mentors count down to launch of wildfire-studying satellite to space station***

The Robertsville Middle School (RMS) NASA *CubeSat Launch Initiative* project, dubbed *RamSat* after the school's mascot, got its official start with the 2015–2016 school year. But the seed had been planted at a Christmas church service in 2014, when RMS STEM teacher Todd Livesay ran into Patrick Hull, an old friend who was in Oak Ridge visiting family for the holidays. Hull, an Oak Ridge native who is now an aerospace engineer at Marshall Space Flight Center in Huntsville, Alabama, wanted to partner with Livesay on a STEM education project.

***Battelle Energy Alliance to Sign Memorandum of Understanding with Shoshone-Bannock School District #537***

INL is formalizing its partnership with Shoshone-Bannock School District #537 (which serves students within the boundaries of the Fort Hall Reservation) to enhance educational and career technical job opportunities for tribal students. Later this month, representatives from the school district and INL's main contractor, Battelle Energy Alliance, will sign a memorandum of understanding to collaborate and facilitate a career technical education and job placement program for students within the district. Both sides will commit to creating workforce pipelines and building a program that leads to employment opportunities after students have completed post-secondary school. The program will also directly create opportunities for scholarships, internships, and career pathways for tribal students at INL.

***Jefferson Lab Expands STEM Pipeline Support***

Offering as many students as possible the opportunity to explore careers in STEM can help broaden diversity in these critically important fields. The U.S. DOE's Thomas Jefferson National Accelerator Facility offered STEM programs for students in elementary school through graduate school. Now, it has expanded its internships to include an option for students who are enrolled in community college.

**ABOUT NETL**



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