

# RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • AUGUST 2020

## Welcome Message

Greetings NETL RWFI stakeholders,

In this month's Workforce Funding Announcements, we have the National Science Foundation's Advanced Technical Education Program, with a Deadline of October 1, 2020. Also included in this month's announcements is a call for comment on the "Carbon Ore, Rare Earths and Critical Minerals (CORE-CM) Initiative for U.S. Basins" notice of intent on STEM skills related to Rare Earth Elements and Critical Materials.

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



### Advanced Technical Education (ATE) Program

National Science Foundation, Deadline, October 1, 2020

With an emphasis on two-year Institutions of Higher Education (IHEs), the Advanced Technological Education (ATE) program focuses on the education of technicians for the high-technology fields that drive our Nation's economy. The program involves partnerships between academic institutions (grades 7–12, IHEs) and industry to promote improvement in the education of science and engineering technicians at the undergraduate and secondary institution school levels. The ATE program supports curriculum development, professional development of college faculty and secondary school teachers, career pathways, and other activities. The program invites research proposals that advance the knowledge base related to technician education. It is expected that projects will be faculty driven and that courses and programs credit bearing, although materials developed may also be used for incumbent worker education.

### Industry-University Cooperative Research Centers (IUCRC) Program

National Science Foundation, Deadline, September 8, 2020

The Industry-University Cooperative Research Centers (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: conduct high-impact research to meet shared and critical industrial needs in companies of all sizes; enhance U.S. global leadership in driving innovative technology development; and identify, mentor, and develop a diverse, highly skilled science and engineering workforce.

### 1890 Institutional Teaching, Research, and Extension Capacity Building Grants (CBG) Program

U.S. Department of Agriculture, Deadline, September 10, 2020

The 1890 Capacity Building Grants (CBG) is intended to strengthen teaching, research, and extension programs in the food and agricultural sciences by building the institutional capacities of the 1890 Land-Grant Institutions, including Tuskegee University, West Virginia State University, and Central State University (per Section 7129 of Pub. L. 113-79). The CBG program supports projects that strengthen teaching programs in the food and agricultural sciences in the need areas of curriculum design and materials development, faculty development, and others. CBG supports projects that strengthen research and extension programs in need areas of studies and experimentation, extension program development support systems, and others. The CBG also support integrated project grants. The intent of this initiative is to increase and strengthen food and agriculture sciences at the 1890s through integration of education, research, and extension. Applications submitted to CBG must address at least one of the following National Institute of Food and Agriculture strategic goals: sustainable bioenergy, food security, childhood obesity prevention, or food safety.

### *Economic Development Research and National Technical Assistance FY18–FY20*

#### **U.S. Department of Commerce, Economic Development Agency, Deadline, September 30, 2020**

Through the Research and Evaluation program, The Economic Development Agency (EDA) builds the knowledge base for sound, market-driven regional and local economic development. This work is critical to ensure that EDA's initiatives and investments are consistent with current best practices in economic development. Program evaluations ascertain EDA's impact on measures such as return on taxpayer investment; private capital investment leveraged; and the creation of higher-skill, higher-wage jobs. Projects under the Research and Evaluation program may be carried out through grants or cooperative agreements, as well as through studies conducted in-house, to maximize the impact of this modestly funded program.

### *Strengthening Community Colleges (SCC) Training Grants*

#### **Department of Labor, Employment, Labor and Training, Deadline, October 8, 2020**

The Strengthening Community Colleges (SCC) Training Grants program will build the capacity of community colleges to collaborate with employers and the public workforce development system to meet local and regional labor market demand for a skilled workforce. The purpose of this grant is to increase the capacity and responsiveness of community colleges to address the skill development needs of employers and dislocated and unemployed workers, incumbent workers, and new entrants to the workforce; to offer this spectrum of workers and other individuals accelerated career pathways that enable them to gain skills and transition from unemployment to (re) employment quickly; and to address the new challenges associated with the COVID-19 health crisis that necessitate social distancing practices and expanding online and technology-enabled learning and migrating services to a virtual environment.

### *FY20 Funding Opportunity Announcement (FOA) for the Department of Navy (DoN) STEM, Education, and Workforce Program administered by the Office of Naval Research (ONR)*

#### **Department of the Navy, Deadline, October 16, 2020**

As the capacity of the DoN Science and Technology (S&T) workforce is interconnected with the basic research enterprise and STEM education system, ONR recognizes the need to support efforts that can jointly improve STEM student outcomes and align educational efforts with Naval S&T current and future workforce needs. This announcement explicitly encourages projects that improve the capacity of education systems and communities to create impactful STEM educational experiences for students and workers. Submissions are encouraged to consider including active learning approaches and incorporating 21<sup>st</sup> century skill development. Projects must aim to increase student and worker engagement in STEM and enhance people with needed Naval STEM capabilities. ONR encourages applications to utilize current STEM educational research for informing project design and advancing our understanding of how and why people choose STEM careers and opportunities of Naval relevance.

### *FY21 Small Business Innovation Research (SBIR) Phase I*

#### **U.S. Department of Agriculture, Deadline, October 22, 2020**

Funds may be awarded up to \$100,000 for a Phase I project or \$106,500 with Technical and Business Assistance. Proposed Phase I projects should prove the scientific or technical feasibility of the approach or concept. Projects dealing with agriculturally related manufacturing and alternative and renewable energy technologies are encouraged across all SBIR topic areas. The United States Department of Agriculture (USDA) SBIR's flexible research areas ensure innovative projects consistent with USDA's vision of a healthy and productive nation in harmony with the land, air, and water. USDA SBIR Program has awarded over 2000 research and development projects since 1983, allowing hundreds of small businesses to explore their technological potential, and providing an incentive to profit from the commercialization of innovative ideas. Click below for more SBIR information.

### *Carbon Ore, Rare Earths and Critical Minerals (CORE-CM) 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 DE-FOA-0002364 titled "Carbon Ore, Rare Earths and Critical Minerals (CORE-CM) Initiative for United States 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 (REEs), 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 Louis Stokes Alliances for Minority Participation (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.

NETL News



**NETL Releases 2020 Compendium of Carbon Capture Technology**

NETL's 2020 Compendium of Carbon Capture Technology, which provides a technical summary of the Lab's Carbon Capture program, is now available for viewing online. The document allows stakeholders in corporations, small businesses, universities, other national laboratories, nonprofit organizations, and government agencies to learn more about the activities of the Carbon Capture program. Developing advanced CO<sub>2</sub> capture technologies is critical to keeping fossil energy-based power generation affordable and reducing greenhouse gas emissions. In the 2020 Compendium of Carbon Capture Technology, R&D efforts highlighted include the development of sorbents, solvents, membranes, and novel concepts for both post- and pre-combustion CO<sub>2</sub> capture.



**NETL Researchers Make Strides to Prepare STEP Plant**

Photo Caption: Image courtesy of Gas Technology Institute. The new STEP facility, supported by NETL, will house a desk-sized sCO<sub>2</sub> turbine that could power 10,000 homes. Key recommendations to guide the operation of a first-of-its-kind testing facility to develop next-generation power plants have been issued by NETL researchers. If successful, testing at this facility will provide a pathway to lower the cost of electricity, shrink the environmental and physical footprint of power generation systems and conserve water.



**NETL Chemist: Lab's Low-Cost Graphene to Fuel 'Rebirth' for Coal**

In his long career at NETL, McMahan Gray has experienced more than a few successes. For example, the award-winning research chemist has made valuable contributions to remove carbon from industrial emissions and extract REEs from coal byproducts, wastewater, and even acid mine drainage. Another ground-breaking contribution may be just around the corner. As part of an ongoing research effort, Gray serves on an NETL team that's writing a new chapter in the long productive history of coal that may revolutionize how the mineral is used in the future. The team has found that rather than combust coal to produce energy, it can be used in new ways to fuel a transformation in carbon-based, high-tech manufacturing to produce safer cars; faster computers; stronger homes, bridges, and highways; and even life-saving biosensors to confirm the presence of disease in the human body.



**Advancing Next-Generation Combustion Technologies with High-Fidelity Diagnostic Data**

Researchers in NETL's Fundamental Combustion Laboratory (FCL) have developed advanced diagnostic techniques that are providing accurate, real-world data to validate models of next-generation fossil fuel and combustible renewable (i.e., hydrogen) technologies like direct power extraction systems and rotating detonation engines (RDE). As the models become more refined, these technologies can be efficiently designed and deployed to realize significant performance benefits, which will help to reduce greenhouse gas emissions and provide more affordable and reliable energy for the nation. "The diagnostic techniques we've developed are unique in that they are very application-specific," Clint Bedick, Ph.D., who works in the FCL, said. "Whether it's finding ways of measuring the intense heat and electrical conductivity of an oxy-combustion flame or recording an RDE shock wave that lasts only milliseconds, we tailor our approach for the specific environments in which we'll be measuring."



*Next Generation of Carbon Capture Technologies Being Developed at NETL*

NETL researchers have developed a method to custom-formulate low-cost membranes to more effectively separate carbon dioxide from nitrogen in a high volume of flue gas. This ability to achieve both high selectivity and high permeability during post-combustion carbon capture operations is one of the most difficult problems facing membrane researchers today. The NETL group solved the challenge by chemically binding multiple membrane components with different critical properties into one high-performance material that can be easily scaled up to reduce the costs of large-scale carbon capture operations.

*Free College 101*

Georgetown University, Center on Education, and the Workforce

The push for free college is a recognition that the most well-traveled economic path to good jobs and the middle class requires at least some college for the vast majority of young Americans. It is also a response to the reality that many students and their families are taking on large amounts of debt to finance increasingly pricey postsecondary educations. In the past decade, tuition and fees have increased 35 percent at public four-year institutions and 23 percent at public two-year institutions. More than 43 million borrowers in the United States hold almost \$1.5 trillion in student loan debt.

*Tracking COVID-19 Unemployment and Job Losses*

The COVID-19 pandemic caused a sudden recession, leaving millions of workers unemployed. Explore unemployment rates and job loss numbers by education level, age, race, gender, industry, and occupation. Workers across the country have been devastated by the economic downturn caused by the coronavirus pandemic. After business closures and other restrictions began in March, unemployment began to rise sharply, peaking in April before starting to fall slowly. Cumulative job losses reached 23 million in May.

**Reports and Resources**



*The Overlooked Value Of Certificates and Associate's Degrees*

Georgetown University, Center on Education, and the Workforce

This report examines the labor-market value of associate degrees and certificate programs, finding that field of study especially influences future earnings for these programs because they are tightly linked with specific occupations. The Overlooked Value of Certificates and Associate's Degrees: What Students Need to Know Before They Go to College also reveals that the combined number of certificates and associate's degrees awarded by colleges is similar to the number of bachelor's degrees awarded — around 2 million per year — with certificates and associate's degrees each accounting for about 1 million.

**DOE STEM Rising**



*Workshop to encourage women and underrepresented minority students to consider careers in plasma physics goes online*

A dozen undergraduate students spent the afternoon doing experiments aimed at teaching them some fundamentals about electromagnets through the Princeton Plasma Physics Laboratory's Undergraduate Workshop in Plasma Physics, but instead of sitting at laboratory tables the students built small homemade batteries and electromagnets in their own living rooms and bedrooms. The students attending the four-day workshop from July 27 to July 30, 2020, broke into small groups and proudly displayed to each other how their batteries could light a small LED lightbulb during a session that was given remotely due to COVID-19.



*Partner Program with Local College Creates a Path to Careers*

The first graduates of a newly-revised program at Northern New Mexico College (NNMC) in Española have recently started their careers in radiation protection at the Laboratory. NNMC has long provided courses in radiation protection, but a partnership signed last year with the Lab expanded the offerings of the associate degree program. Under the five-year agreement, the Laboratory provides funding that supports a full-time faculty member at the college, a career services position, materials and equipment, and ten paid internships per year. The internships not only provide for students' tuition, fees, books, and class time, but provide a pathway to a job at the Lab after graduation.



*All in STEM - a New Digital Resource*

The STEM workforce produces at its highest level when Americans from all races, backgrounds, and walks of life are working in STEM careers. Regardless of your background, zip code, race, gender, or income level, all talent is needed to tackle the STEM challenges of today (and tomorrow) in the ever-expanding STEM workforce.



*Community, Science, and Your Neighbor - the U.S. Department of Energy*

Being a good neighbor is more than engaging with those on our block and near our homes. To the U.S. DOE, steward of 17 National Laboratories across the country, we strive to be good members of the neighborhoods and communities that surround our facilities, serve as our workforce, and develop the next generation of energy professionals. On August 5, 2020, Dr. Chris Fall, Director of the Office of Science, and Sir Steven Cowley, Director of Princeton Plasma Physics Laboratory in New Jersey, hosted a conversation about science and the community. Part of their roles is to expand engagement of their office and Lab with elected officials, community residents, and business leaders, knowing that partnership and solid community input leads to stronger results for our work.

## 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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