

# RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • MARCH 2021

## Welcome Message

Greetings NETL RWFI stakeholders,

In this month's funding in focus is an announcement from the National Science Foundation, for their "*Industry-University Cooperative Research Centers Program*" funding opportunity. This program catalyzes breakthrough pre-competitive research by enabling close and sustained engagement between industry innovators, world-class academic teams, and government agencies. The deadline is June 9, 2021.

The NETL RWFI will also be hosting an Energy 101 webinar on Thursday, April 29, 2021, from 1:00–2:00 p.m. EDT, on Carbon Capture, Utilization, and Storage (CCUS). In this webinar, we will discuss NETL's research focus on CCUS and the potential for economic and workforce development opportunities that successful research, development and commercialization may bring. **Registration is free but limited and filling fast! Click here to register today.**

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



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

**National Science Foundation, Deadline, June 9, 2021**

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.

### *Funding Opportunity Announcement for the Department of Defense (DoD) National Defense Education Program (NDEP) for STEM, and Biotechnology Education, Outreach, and Workforce Initiative Programs and Enhanced Civics Education*

**U.S. Department of Defense, Deadline, April 19, 2021**

The DoD NDEP seeks innovative applications on mechanisms to implement STEM education, outreach, and/or workforce initiative programs. The NDEP also seeks innovative applications on mechanisms to specifically implement biotechnology outreach and workforce development. Additional NDEP efforts include a pilot program in enhanced civics education.

### *Louis Stokes Alliances for Minority Participation (LSAMP) Program*

**National Science Foundation, Deadline, June 1, 2021**

This alliance-based program's theory is based on the Tinto model for student retention referenced in the 2005 LSAMP program evaluation. The overall goal of the program is to assist universities and colleges in diversifying the nation's STEM workforce by increasing the number of STEM baccalaureate and graduate degrees awarded to the following underrepresented populations: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders. LSAMP's efforts to increase diversity in STEM are aligned with the goals of the federal government's five-year strategic plan for STEM education, *Charting a Course for Success: America's Strategy for STEM Education*.

### *Agriculture and Food Research Initiative Competitive Grants Program Education and Workforce Development (EWD) Program*

**U.S. Department of Agriculture, Deadline, July 1, 2021**

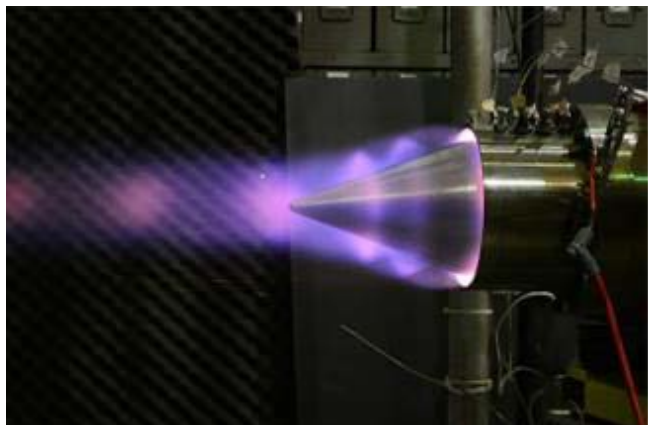
The Agriculture and Food Research Initiative EWD focuses on developing the next generation of research, education, and extension professionals in the food and agricultural sciences. In FY21, EWD invites applications in five areas: professional development for agricultural literacy, training of undergraduate students in research and extension, fellowships for predoctoral candidates, fellowships for postdoctoral scholars, and a brand-new program for agricultural workforce training.

NETL News



**First-of-its-Kind Distributed Sensing Method Applied to Solid Oxide Fuel Cell (SOFC)**

SOFCs hold great promise for providing highly efficient, clean energy for a low-carbon economy. However, adoption of these next-generation technologies hinges on reducing component degradation and improving longevity. The ability to make numerous, real-time, highly accurate temperature measurements across an SOFC could better inform SOFC modeling efforts aimed at designing more resilient fuel cells. To this end, NETL researchers, in collaboration with the University of Pittsburgh, have successfully embedded multiple distributed fiber optic sensors into an SOFC multi-cell test to achieve a previously unattainable degree of spatial resolution in temperature measurement. The work was recently featured in an article in the prestigious journal *Applied Energy*.



**NETL Advances Rotating Detonation-Wave Combustor Technology**

With support from partners in academia, NETL researchers have taken steps toward realizing the potential of rotating detonation combustion technology, which can offer a number of advantages over conventional internal combustion. Internal combustion engines such as gas turbines are effective, but they suffer pressure and power output limitations. Rotating detonating engines create controlled, continuous detonation waves that rotate inside a modified gas turbine combustion chamber. This allows the engines to be able to avoid pressure losses and the subsequent decreases in efficiency that occur with conventional gas turbine engines. The rotating detonation process enables more of a fuel's energy to be captured and utilized, resulting in higher power output, less fuel consumption, a smaller industrial footprint and reduced environmental impact.



**Data Mining by NETL Produces Insights to Protect Integrity of Oil and Gas Wells**

In a groundbreaking study, NETL researchers and their collaborators compiled and analyzed an unprecedented amount of regulatory data that describes the integrity of oil and gas wells in multiple states. The study results will be valuable for industry operators and regulatory agencies as they seek to prevent well leakage and ensure the success of carbon storage, oil and gas production, natural gas storage, and hydrogen storage operations. Findings are presented in a research article titled "Public Data from Three U.S. States Provide New Insights into Well Integrity" published in the *Proceedings of the National Academy of Sciences of the United States of America*.

**NETL Energy Analyses Providing Insights During Energy Transition**

Electricity use in the United States has seen great changes in recent years for a variety of factors — such as the shale revolution and a desire to reduce greenhouse gas emissions. Throughout this process, a resource at the nation's service is NETL's Systems Engineering & Analysis and the lab's Energy Markets Analysis team, which conduct comprehensive studies of energy grids throughout the country and provide information that can aid decision makers through this time of transition. Such analyses, which are often performed in collaboration with regional stakeholders, provide useful information to industry and the public while generating data and insights that can help focus and guide research and development activities within the DOE and NETL. "It is important that we conduct these studies so that we can keep a forward eye across the grid and time so that NETL stays at the leading edge of developing technologies that will be needed in the future," said John Brewer, an engineer on NETL's Energy Markets Analysis team.

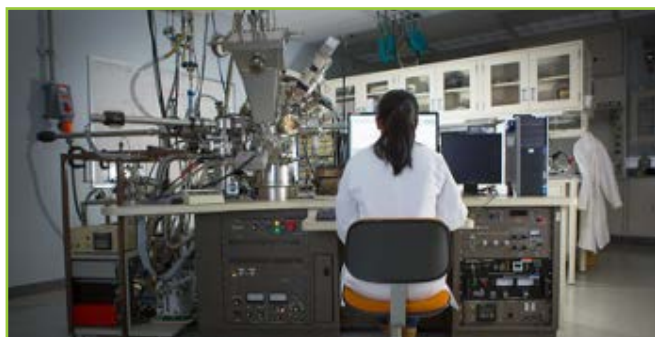




**NETL Director Shares Pathways to Decarbonization During Carnegie Mellon University's Energy Week**

NETL Director Brian Anderson, Ph.D., highlighted NETL's carbon capture technology development and its vital role in decarbonizing the energy sector during Carnegie Mellon University's Energy Week, which was held virtually Monday, March 22 through Friday, March 26, 2021. "Carbon capture technologies have the potential to offer viable pathways to enable deep decarbonization of both the U.S. and the world," Anderson said prior to Energy Week. "Early on, NETL recognized the need to rapidly accelerate development and deployment of these technologies, and we already have a solid foundation in place to achieve a carbon emission-free electricity sector by 2035 and economy-wide net-zero emissions by 2050." NETL manages a broad portfolio of carbon capture projects, including post-combustion and pre-combustion capture to reduce carbon emissions in a wide spectrum of industries, from fossil-fueled power generation to manufacturing and heavy industry. The portfolio also contains negative emissions technologies such as direct capture of CO<sub>2</sub> from the atmosphere and bioenergy with carbon capture.

**Events and Meetings**



**NETL RWFI Energy 101 Webinar: Carbon Capture, Utilization, and Storage (CCUS)**

**Online Webinar, April 29, 2021, 1:00–2:00 p.m. EDT**

The NETL RWFI Energy 101 Series provides a basic primer on the research conducted at NETL, including the challenges and potential economic and workforce opportunities that successful research into these topics and their related challenges may bring to the region and the nation. NETL researchers present information on their work in an easy to follow and easy to communicate fashion. In this webinar, discussions will be held on NETL's research focus on CCUS and the potential for economic and workforce development opportunities that successful research, development, and commercialization may bring.

**Reports and Resources**



**LinkedIn January 2021 Workforce Report**

The LinkedIn Workforce Report is a monthly report on employment trends in the U.S. workforce. It's 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**

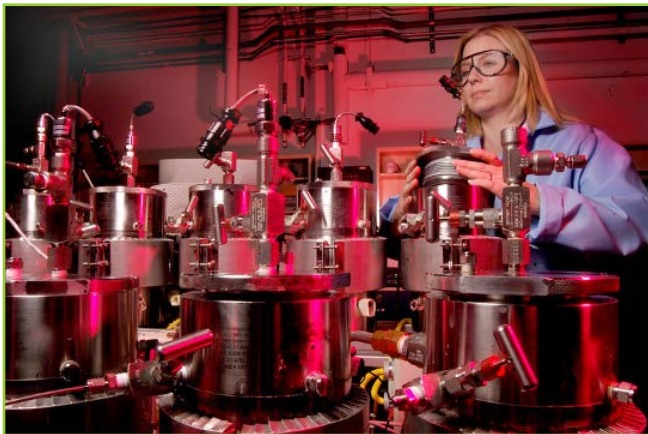
- January was the second consecutive seasonally adjusted month-over-month decline in the data: hiring in the U.S. was 2.8% lower in January 2021 from December 2020, and 7.6% lower than in January 2020. There is good reason to be optimistic that this "double dip" will end soon due to the triple punch of fiscal stimulus, vaccination and better weather.
- Nearly all industries were down year-over-year in January, with two exceptions: Agriculture (+1.8%) and Health Care (+0.3%). Another notable industry that has bucked the pessimistic trend is Software & IT (+3% M/M). Its recovery has trailed the rest of the labor market, but in December and January it has pulled further ahead even as the rest of the economy has pulled back and is now outperforming.
- No cities in the data emerged as up year-over-year in January, but Phoenix, Arizona, and Austin, Texas, did inch up slightly from December. The last time any cities posted year-over-year gains was in November when Dallas, Texas, and Denver, Colorado, moved into positive territory.

DOE STEM Rising



*Sparking a Future with Women in Science*

For five women at the U.S. DOE national laboratories, inspiring girls and women to pursue STEM is an official part-time job. Amy Elliot, Mercedes Taylor, Harshini Mukundan, J’Tia Hart, and Jessica Esquivel are all American Association for the Advancement of Science IF/THEN Ambassadors. This program was started in 2019 to inspire the next generation of women in STEM.



*DOE Announces \$52.5 Million to Support U.S. Manufacturers and Industrial Workers*

“These programs are proof that big climate investments can help small businesses reduce their emissions and increase their efficiency, while saving them thousands of dollars,” said Secretary of Energy Jennifer Granholm. “This new funding is an investment in both the infrastructure and next-generation clean energy workforce we need to tackle the climate emergency and meet President Biden’s goal of net-zero carbon emissions by 2050.”



*STEM inspirations: Meet five National Nuclear Security Administration women working to keep America safe*

Women make up more than half the U.S. population, yet are significantly outnumbered by men in STEM-related fields in college, and constitute only a third of the STEM workforce, with some industries showing much less representation than others. While STEM opportunities continue to grow and gain popularity, the number of women in fields such as computer science, engineering, and math have yet to see an upward shift.



## 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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