

# RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • JANUARY 2022

## Welcome Message

Greetings NETL RWFI stakeholders,

This month's funding in focus is a funding opportunity from the National Institute of Food and Agriculture, with the purpose of increasing participation of women and underrepresented minorities in rural areas into STEM. Also, in this month's E-Note is an invitation to participate in this month's Energy 101 Webinar on Hydrogen and the Low-Carbon Economy that will occur on January 27<sup>th</sup> from 11:00 – 12:00 p.m. EST. In this webinar, you will learn about the research being conducted by NETL in Hydrogen technologies and how successes in research may lead to economic and workforce opportunities. [CLICK HERE TO REGISTER](#) (registration free but limited). Also on January 27<sup>th</sup> at 2:00 – 3:00 p.m. EST, there will be a webinar that will discuss a new online funding clearinghouse from the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization. You can register for this webinar by [clicking here](#). To learn more about both webinars visit the events section of this month's e-note.

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.

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



### Women and Minorities in STEM Fields Program

National Institute of Food and Agriculture, Deadline, March 31, 2022

The purpose of this program is to support research, education/teaching and extension projects that increase participation by women and underrepresented minorities from rural areas in STEM. The National Institute of Food and Agriculture (NIFA) intends this program to address educational needs within broadly defined areas of food and agricultural sciences. Applications recommended for

funding must highlight and emphasize the development of a competent and qualified workforce in food and agricultural sciences. WAMS-funded projects improve the economic health and viability of rural communities by developing research and extension initiatives that focus on new and emerging employment opportunities in STEM occupations. Projects that contribute to the economic viability of rural communities are also encouraged.

*National Science Foundation (NSF) Directorate for Education and Human Resources (EHR) Core Research (ECR): Building Capacity in STEM Education Research (ECR: BCSER)*

National Science Foundation, Deadline, Feb. 25, 2022

ECR: BCSER solicitation supports projects that build individuals' capacity to carry out high-quality STEM education research that will enhance the nation's STEM education enterprise and broaden the pool of researchers that can conduct fundamental research in STEM education and learning environments. The overall goal is to increase participation in STEM fields and enhance STEM workforce development.

*Future of Work at the Human-Technology Frontier: Core Research*

National Science Foundation, Deadline, March 1, 2022

The specific objectives of the Future of Work at the Human-Technology Frontier program are to 1) facilitate multi-disciplinary or convergent research that employs the joint perspectives, methods, and knowledge of behavioral science, computer science, economics, engineering, learning sciences, research on adult learning and workforce training, and the social sciences; 2) develop a deeper understanding of how human needs can be met and values respected in regard to how new technologies, conditions, and work experiences are changing; 3) support a deeper understanding of the societal infrastructure that accompanies and leads to new work technologies and new approaches to work and jobs, and that prepares people for the future professional world; 4) encourage the development of a research community dedicated to designing intelligent technologies and work organization and modes inspired by their positive impact on individual workers, the work at hand, the way people learn and adapt to technological change, creative and inclusive workplaces (including remote locations, homes, classrooms, or virtual spaces), and benefits for social, economic, educational, and environmental systems at different scales; 5) promote a better understanding of the interdependent human-technology partnerships to advance societal needs by advancing design of intelligent technologies that operate in harmony with human workers, including consideration of how adults learn the new skills needed to interact with these technologies in the

workplace, and by enabling broad and diverse workforce participation, including improving accessibility for those challenged by physical or cognitive impairment; and 6) understand, anticipate, and explore ways of mitigating potential risks, including inequity arising from future work at the human-technology frontier.

### *Environmental Literacy Program: Increasing community resilience to extreme weather & climate change*

**National Oceanic and Atmospheric Administration, Deadline, March 17, 2022**

The goal of this funding opportunity is for communities to have sufficient collective environmental literacy to take actions that build resilience to extreme weather and climate change in ways that contribute to community health, social cohesion, and socio-economic equity. These communities will be composed of children, youth, and adults who participate in formal and/or informal education experiences that develop their knowledge, skills, and confidence to: 1) better understand the ways that human and natural systems interact globally and locally, including the acknowledgement of disproportionately distributed vulnerabilities; 2) participate in civic processes; and 3) incorporate scientific information, cultural knowledge, and diverse community values. Efforts to build environmental literacy should ultimately aim to reduce risks from current and future environmental hazards through climate-smart and inclusive decision-making and long-term stewardship of healthy ecosystems, all the while promoting a low-carbon economy.

### *Innovations in Graduate Education (IGE) Program*

**National Science Foundation, Deadline, March 25, 2022**

The IGE program is designed to encourage the development and implementation of bold, new, and potentially transformative approaches to STEM graduate education training. The program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers.

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

**National Science Foundation, Deadline, March 28, 2022**

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 the following innovative approaches: 1) to incentivize institutional and community transformation and 2) to promote fundamental research (i) on engaged student learning, (ii) about what it takes to diversify and increase participation in STEM effectively, and (iii) that 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.

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

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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.

### *ECR: BCSER*

**National Science Foundation, Deadline, March 29, 2022**

ECR: BCSER supports projects that build investigators' capacity to carry out high-quality STEM education research that will enhance the nation's STEM education enterprise. In addition, ECR: BCSER seeks to broaden the pool of researchers who can advance knowledge regarding STEM learning and learning environments, broadening participation in STEM fields and STEM workforce development. Researchers of races and ethnicities, genders, sexual orientations and abilities who are currently underrepresented in their participation in STEM education research and the STEM workforce, as well as faculty at minority-serving and two-year institutions, are particularly encouraged to submit proposals.

### *FY21 Office of Naval Research (ONR) STEM Program*

**Office of Naval Research, Deadline, March 30, 2022**

ONR 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. Navy and Marine Corps' technological superiority. The goal of 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 ONR science and technology areas.

## NETL News



### *NETL Project Partners Seek to Capture Greenhouse Gas from Cement Kilns*

The image above shows a modular container unit with Polaris membrane stacks. The CEMEX project will have multiple containers.



NETL's industry partners are evaluating the use of a transformational membrane technology to capture greenhouse gas produced during the manufacturing of cement and lower the environmental footprint for this important building and construction material. "The project being developed with our industrial partners at the CEMEX Balcones facility in New Braunfels, Texas, is generating an initial engineering design and constructability review to determine if the application of an advanced industrial membrane capture technology at a cement plant is feasible," said NETL's Carl Laird, federal project manager.



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

The January 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.



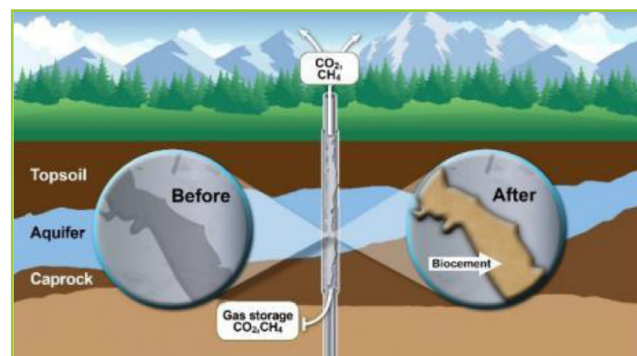
### NETL Project Partner to Advance New Enhanced Geothermal Systems Technologies

The Energy & Geoscience Institute at the University of Utah and the U.S. DOE Office of Energy Efficiency & Renewable Energy's Geothermal Technologies Office have partnered with NETL to explore enhanced geothermal systems (EGS) via the Utah Frontier Observatory for Research in Geothermal Energy project. Once optimized and developed, electricity from EGS could power tens of millions of American homes and businesses. Geothermal resources occur where water circulates through a network of interconnected fractures, or pathways, within naturally hot rocks found deep below the planet's surface. Operators can then produce power from the hot water once it is brought to the surface by deep underground wells. However, not all of these resources are conducive for power generation. Some don't contain enough water to extract the heat, while others contain too few pathways to circulate the water. In an effort to solve the latter challenge, operators can inject fluid into the hot rocks, create pathways, and extract the heat resource from a new, manmade geothermal reservoir.



### NETL Energy Conversion Research Sees Success in 2021

As the nation's energy sector moves toward an emissions-free future, fuel flexibility and successful integration of renewable resources will be more important than ever in designing the next generation of power plants. NETL research in energy conversion engineering (ECE) is enabling researchers to understand what will comprise the advanced energy systems of tomorrow, pioneering innovation in low-carbon power production to meet the Biden Administration's goals of a net-zero emissions power sector by 2035 and broader economy by 2050. Throughout 2021, the lab's ECE researchers saw success in using microwaves to unearth the potential of several materials of interest. These efforts will continue to benefit the nation's energy landscape in the new year.



### NETL Partners Commercialize Rock-Growing Technology to Reduce Greenhouse Gas Emissions

The image above illustrates MICP formation in a wellbore cement defect and leakage pathway. The resulting mineral seal mitigates leakage to aquifers and the atmosphere.

Bioengineering technology developed by university and industry partners with NETL oversight could become an important tool in the Biden Administration's plan to seal orphaned oil and gas wells and prevent leakages of methane, a potent greenhouse gas, into the atmosphere and underground water supplies. NETL's collaboration with the Montana State University Energy Research Institute and Center for Biofilm Engineering, Montana Emergent Technologies (MET) and others began in 2014 to develop a novel technology in which microbes initiate a process to help seal problematic defects in wellbore casing cement. After undergoing multiple laboratory and field tests, the technology was licensed as a commercial product. So far, it's been used by BioSqueeze Inc., formerly MET, to plug more than 40 wells across the U.S.

## Webinars/Meetings



### *The College Payoff: More Education Doesn't Always Mean More Earnings*

**Webinar, Jan. 27, 2022, 11:00 a.m.–12:00 p.m. EST**

Hydrogen is the most abundant element in the universe, making up nearly 75% of all matter powering our sun. Hydrogen as a source of energy has been an interest to scientists since the 1800s because of its abundance in the environment and high energy per unit mass. Many of you may have even driven in a hydrogen powered bus or vehicle. Most of the hydrogen that exists in nature is bonded to water or other organic compounds and requires energy to break those bonds. The various methods of breaking those bonds come with their own energy needs and emissions challenges. If research breakthroughs occur, the potential broader use of hydrogen in transportation, electricity generation, energy storage, manufacturing, and industry will be immense. [Click here to register \(registration is free but limited\).](#)

Solving these challenges will provide a significant energy source in achieving a low-carbon economy and could lead to the development and growth of a hydrogen workforce. In this Energy 101, you will learn the basics of the use of hydrogen as an energy source and the potential associated with its use. A Subject Matter Expert from NETL will describe the NETL hydrogen program and some of its research focuses including next-generation materials development, natural gas decarbonization, and advanced transport and storage monitoring and data. We will also discuss the workforce implications of hydrogen technology, including understanding what skills and occupations may be necessary in the hydrogen workforce.

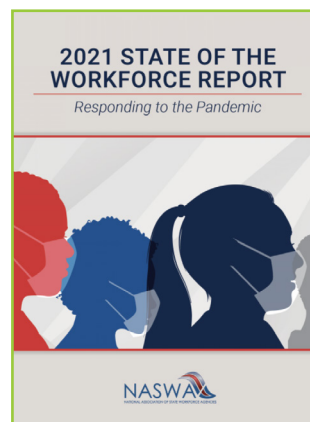
### *Interagency Working Group (IWG) on Coal and Power Plant Communities and Economic Revitalization Clearing House Webinar Announcement*

**Webinar, January 27, 2022, 2:00–3:00 p.m. EST**

New Clearinghouse Helps Energy Communities Access Federal Funds: A How-To Webinar

To learn more about the IWG's clearinghouse of funding opportunities, including how to use this important new tool, please mark your calendar and [register here](#) for our next webinar on Thursday, January 27, 2022, from 2:00–3:00 p.m. EST. This virtual session will include an overview of the 60+ open or planned funding opportunities currently on the clearinghouse, including many that do not require matching funds and a how-to guide for finding and filtering relevant funding opportunities based on a community's specific needs. Representatives from multiple federal agencies discussing notable funding sources that are both currently available and coming soon.

## Reports and Resources

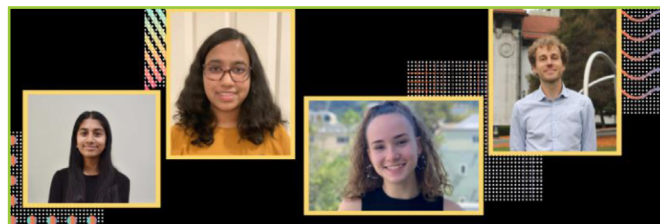


### *2021 State of The Workforce — Responding To The Pandemic*

#### **National Association of State Workforce Agencies**

The 2021 State of the Workforce Report focuses on how the workforce agencies in all 50 states, the District of Columbia, and the U.S. Virgin Islands responded to assist American workers through one of the worst economic downturns our country has experienced. Throughout the COVID-19 pandemic, workforce agencies have worked tirelessly to assist an unprecedented number of individuals and implement a host of new unemployment insurance programs.

## DOE STEM Rising



### *How the Advanced Quantum Testbed Prepares the New Quantum Workforce*

It's an exciting time to build and study quantum computers. With different prototypes being explored across the board, advancements in materials, instrumentation and engineering are paving the way for a completely different way to compute information. And although the state of technology is still early-stage, there are many opportunities for professional growth and development.



## ABOUT NETL



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