

RWFI E-NOTE MONTHLY

REGIONAL WORKFORCE INITIATIVE • MAY 2018

Welcome Message

Greetings NETL RWFI stakeholders.

In this month's E-Note you will find new funding announcements from the National Science Foundation, the U.S. Department of Agriculture, and the U.S. Department of Education. Additionally, there are new reports on the "State of STEM" and a new "Energy and Employment Report" with both national and state breakdowns of energy industry employment. And finally, the NETL RWFI has a website home at <https://www.netl.doe.gov/business/tech-transfer/regional-workforce-initiative> where you will find more information on the mission of the RWFI as well as past editions of the NETL RWFI E-Note.

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.

– Sincerely, The NETL Regional Workforce Initiative Team

Workforce Funding Announcements



Industry-University Cooperative Research Centers Program (IUCRC)

National Science Foundation, **Deadline, June 20, 2018**

Open to two- and four-year colleges including community colleges, the IUCRC program develops long-term partnerships among industry, academia, and government. The Centers are catalyzed by an investment from the National Science Foundation (NSF) and are primarily supported by industry Center members, with NSF taking a supporting role in the development and evolution of the Center. Each Center is established to conduct research that is of interest to both the industry members and the Center faculty. An IUCRC contributes to the nation's research infrastructure base and enhances the intellectual capacity of the engineering and science workforce through the integration of research and education. As appropriate, an IUCRC uses international collaborations to advance these goals within the global context.

Solar Energy Technologies Office (SETO) FOA FY 2018

U.S. Department of Energy, Golden Field Office,
Deadline, June 26, 2018

The FOA will support early-stage research that spans the SETO portfolio, seeking to advance both solar photovoltaic (PV) and concentrating solar thermal power (CSP) technologies and to facilitate the swift integration of those technologies into the nation's electricity grid. It is also designed to support efforts that prepare the workforce for the solar industry's future needs. The FOA is organized into the following high-level Topic Areas: Topic 1: Advanced Solar Systems Integration Technologies describes SETO research priorities in the seamless integration of high penetrations of solar energy onto the nation's electricity grid. Topic 2: Concentrating Solar Thermal Power Research and Development describes SETO research priorities that support solar technologies that focus sunlight to generate and store high-temperature heat for electricity generation and other end uses. Topic 3: Photovoltaic Research and Development describes SETO research priorities that support the further development of photovoltaic technologies that improve system reliability, annual energy yield, demonstrate performance of novel PV devices and develop new PV materials. Topic 4: Improving and Expanding the Solar Industry through Workforce Initiatives describes SETO research priorities that support solar workforce development. This topic area addresses two primary aspects of the U.S. workforce relevant to the expansion of solar energy: (1) increased participation of talent pools, such as veterans, in the solar industry and (2) enhancing the digital skills of U.S. electric grid workers through coordinated industry effort.

STEM + Computing (STEM+C) K-12 Education

National Science Foundation, **Deadline, July 2, 2018**

An innovative STEM+C workforce and a well-educated citizenry are crucial to the Nation's prosperity, security, and competitiveness. Preparation for the future workforce must begin in the earliest grades. Students need to learn not only the science and mathematics central to these areas, but also how computational thinking is integral to STEM disciplines. Because of the powerful innovation and application of computing in STEM disciplines, there is an urgent need for real-world, interdisciplinary, and computational preparation of students from the early grades through high school (preK-12) that will provide a strong foundation for mid-level technical careers and for continuing education in higher education. This is particularly important in the key science areas described in the Big Ideas for Future NSF Investment. The STEM+C program supports research and development proposals related to new approaches to pre-K-12 STEM teaching and learning related to Harnessing the Data Revolution, Convergence Research, and the Future of Work at the Human-Technology Frontier.

Accelerating Discovery: Educating the Future STEM Workforce

National Science Foundation, **Deadline, July 2, 2018**

A well-prepared, innovative STEM workforce is crucial to the Nation's prosperity and security. Future generations of STEM professionals are a key sector of this workforce, especially in the critical scientific areas described in the Big Ideas for Future NSF Investments. NSF recognizes the need to support development of and research on effective educational approaches that can position the future STEM workforce to make bold advances in these Big Ideas. In response to this need, the NSF's Education and Human Resources Directorate seeks to invest in projects that can educate the STEM workforce to advance discovery in the six research Big Ideas: Harnessing the Data Revolution, The Future of Work, Navigating the New Arctic, Multi-messenger Astrophysics, The Quantum Leap, and Understanding the Rules of Life. In addition to developing and implementing novel educational and/or training programs, these projects should simultaneously generate new knowledge about effective STEM education, by studying such programs and exploring related issues. Specifically, NSF accepts proposals to support education research and development projects focused on re- or up-skilling the existing workforce; developing the skilled technical workforce; and/or preparing those at the undergraduate, graduate, or postdoctoral fellow/early career levels. NSF encourages projects that partner with industry, public, and private sectors to define the needs of tomorrow's workforce and develop educational and learning strategies to meet those needs. Proposals should address near-, mid-, and long-term challenges and opportunities facing the development of STEM professionals or anticipate new structures and functions of the STEM learning and teaching enterprise.

Science of Learning

National Science Foundation, **Deadline, July 11, 2018**

The Science of Learning (SL) program supports potentially transformative basic research to advance the science of learning. The goals of the SL Program are to develop basic theoretical insights and fundamental knowledge about learning principles, processes, and constraints. Projects that are integrative and/or interdisciplinary may be especially valuable in moving basic understanding of learning forward, but research with a single discipline or methodology is also appropriate if it addresses basic scientific questions in learning. The possibility of developing connections between proposed research and specific scientific, technological, educational, and workforce challenges will be considered as valuable broader impacts but are not necessarily central to the intellectual merit of proposed research. The program will support research addressing learning in a wide range of domains at one or more levels of analysis including: molecular/cellular mechanisms; brain systems; cognitive affective, and behavioral processes; and social/cultural influences. The program supports a variety of methods including: experiments, field studies, surveys, secondary-data analyses, and modeling.

Office of Career, Technical, and Adult Education: Pathways to STEM Apprenticeship for High School Career and Technical Education Students Demonstration Program CFDA Number 84.051E

U.S. Department of Education, Office of Career, Technical, and Adult Education, **Deadline, July 17, 2018**

The purpose of the Pathways to STEM Apprenticeship for High School Career and Technical Education (CTE) Students (Pathways to STEM Apprenticeship grants) demonstration program is to support state efforts to expand and improve the transition of high school CTE Students to postsecondary education and employment through apprenticeships in science, technology, engineering, and mathematics (STEM) fields — including Computer Science — that begin during high school. Interested participants should contact their state boards of education, local workforce development boards or workforce ready offices to learn more about accessing this state-based funding.

Agriculture and Food Research Initiative - Education and Workforce Development

USDA, National Institute of Food and Agriculture, **Deadline, July 19, 2018**

The Agriculture and Food Research Initiative - Education and Workforce Development (EWD) (formerly the Food, Agriculture, Natural Resources and Human Sciences Education and Literacy Initiative, or ELI) focuses on developing the next generation of research, education, and extension professionals in the food and agricultural sciences. In FY 2018, EWD invites applications in four areas: professional development opportunities for K-14 teachers and education professionals, training of undergraduate students in research and extension, fellowships for predoctoral candidates, and fellowships for postdoctoral scholars. See EWD Request for Applications for specific details.

NETL Meetings and Regional Events



NETL Shares STEM Wonders at area elementary and middle schools in May

NETL's K-12 STEM Education & Outreach team visited schools across the region, with stops at Beech Bottom Primary School, in Brooke County, WV; Carnegie Elementary School in Carnegie, PA; and Brownsville Area Middle School in Brownsville, PA. The team shared stimulating, hands-on activities designed to excite students about the wonders of STEM. NETL's education program seeks to educate the next generation of researchers, engineers, and scientists who will work to boost our nation's energy dominance through technological solutions. K-12 outreach is just one of the ways NETL encourages excellence in STEM, fosters positive attitudes toward STEM, and builds students' confidence as STEM learners.

NETL News



Magnetic Research Offers Novel Opportunities for Electric Power Improvements

Advanced power magnetism research conducted by NETL and its partners offers novel opportunities to boost efficiency, spur economic investment, and reduce infrastructure as industry looks toward smaller, more efficient power technology capable of meeting the diverse demands of the modern world.

Request for Information (RFI) Issued for Steam-Based Power Cycles for Coal Fueled Boilers

The U.S. DOE's Office of Fossil Energy has issued an RFI for input on the development of improvements in steam-based power cycles applicable to coal-fueled boilers. The objective of this RFI is to support DOE's mission to lead research and technology development that promotes better steam turbine performance through advanced design and manufacturing techniques.

Workforce Conferences, Meetings, and Summits



Million Women Mentors, Leadership Circle Webinar

STEMconnector Webinar, **June 6, 2018**

Million Women Mentors inspires the confidence and interest in young women and girls to pursue STEM careers and leadership opportunities through the power of mentoring. This one-hour webinar will be a chance to celebrate and build on progress within each council, while providing concrete calls to action for attendees. It will start at 11AM ET on Wednesday, June 6th. Visit the link above for more information or [register here](#).

The Building a STEM Leadership Alliance Summit

National Science Teachers Association, Loews Portofino Bay Hotel, Orlando, Florida, **July 8–11, 2018**

The National Science Teachers Association is creating an alliance of business, education, and community leaders. The Alliance will be launched at this three-day Summit on July 8–11, 2018, where participants will engage in critical conversation to address questions about STEM education and to create an agenda for change. For the first time in history, the four leading STEM organizations — NSTA, NCTM, ISTE, and ITEEA — will convene with a select group of participants in leadership roles in STEM education, including chief state school officers, superintendents, principals, teachers, and business and nonprofit leaders.

Reports and Resources



STEMconnector releases State of STEM report

STEMconnector released new research on the forces and factors that underlie the STEM talent gap, providing direction for further investment by industry, higher education, government, and nonprofits to eliminate barriers to opportunity for individuals across the STEM talent pipeline. The first-of-its kind report, *The State of STEM: Defining the Landscape to Determine High-Impact Pathways for the Future Workforce*, delivers a comprehensive view of the STEM ecosystem, identifying major players in the space for the purpose of fostering cross-sector collaboration to solve talent challenges.

Bridging the Skills Gap in the Manufacturing Industry

There is currently a skills gap affecting the manufacturing industry. This gap has been growing for some time but has reached new heights in the years since the 2008 recession. The result has been manufacturers that are facing difficulties filling open positions due to a lack of qualified and skilled applicants. Projections from *Deloitte and the Manufacturing Institute*, among other industry analysts, predict that over the next decade, more than 2 million manufacturing jobs will go unfilled across the U.S.

2018 U.S. Energy and Employment Report

Produced by the *Energy Futures* Initiative in partnership with the *National Association of State Energy Officials*, the U.S. Energy and Employment Report provides a quantitative lens with which to evaluate the employment impact of new energy technologies, shifting fuels deployment, and evolving transmission and distribution systems. It also presents a unique snapshot of energy efficiency employment in key sectors of the economy, including construction and manufacturing. The report also illustrates how fuel efficiency, as well as new technologies and materials, affect employment in the motor vehicle industry.

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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