

GRIDED

The Center for Grid Engineering Education

GridEd's *GREAT with Data* Initiative

The Electric Power Research Institute (EPRI) along with electric utility partners and universities are launching the Grid-Ready Energy Analytics Training (GREAT) with Data initiative to train and educate (T&E) the next generation of electric industry workers to be *GREAT with Data*. This effort is in-part funded by the U.S. Department of Energy (DOE). EPRI will leverage prior DOE investments with utility funding in workforce development through EPRI's Center for Grid Engineering Education ([GridEd](#)) project, several EPRI Board-approved investments in [EPRI|U](#) (EPRI University) and EPRI's internal Data Analytics, Artificial Intelligence, and Cyber Security initiatives, along with relevant EPRI research & development (R&D) and university shared funding and research.

The GREAT with Data initiative will develop and deliver T&E materials (both professional and university training) to address issues for merging Grid Operations Technology (OT) and Information Technology (IT). The central theme is to create necessary T&E activities for the next-generation power engineers and data scientists so they can design and develop the grid architecture and infrastructure to enable the integration of distributed energy resources (DER).

The project will train, educate, and recruit qualified personnel into the electric power industry through enhanced industry coordination and workforce readiness initiatives. New and revised university curricula will prepare incoming engineers and computer scientists for the newly evolving grid architecture and infrastructure. Further, this project will develop credentials for the T&E needed in the electric power industry workplace to transform the grid.

Project Goals and Approach

As the new architecture and infrastructure of the grid unfold, developing a workforce trained in the range of skills necessary to operate, enhance, and advance the process is essential. The intersection of the power systems and information systems technologies defines the new architecture for the electric system. The enabling strength of digital technologies will empower future electric system designers and operators with the ability to accommodate a range of options, from distributed to central station assets. The new electric system expands the principle of the classic electric system from a traditional central station generation, transmission, and distribution system to a new order that embraces a grid architecture that integrates **all** DER and includes flexible load as an integral part of the electric system.

Five universities will lead the development of university curriculum to prepare the next-generation power engineers and data scientists. These universities represent some of the top U.S. schools in the fields of electric power and digital science that are necessary to form this electric grid architecture of the future.



The GREAT with Data initiative will address T&E for workforce skills in five key technical areas:

- Power system fundamentals
- Data science—including descriptive, prescriptive, and predictive analytics—and machine learning
- Cyber security
- Information and communication technologies (ICT), including increased grid interoperability and standardization
- Integration of solar photovoltaic (PV) and other synergistic DER such as energy storage, electric vehicles, and demand response (DR)

Multiple delivery mechanisms—from live in-person instruction to computer- or cloud-based digital training modules—will be used. Target audiences include engineering, applied mathematics, and computer science students; professional engineers; executives; data scientists; and increasing diverse talent pools (veterans, women, and other underrepresented minorities) in the power industry.

Electric utilities rely heavily on regional resources from which they obtain assets and people. In support, five strategic regional training hubs across the United States will prioritize feedback and guide content development and delivery to meet regional supply principles. A national training repository, a data analytics center of excellence in power systems, and “train the trainer” workshops will facilitate program expansion. Further, innovative training simulators and digital learning platforms that use both augmented and virtual reality, in which trainees get hands-on experience with virtual assets, will be explored.