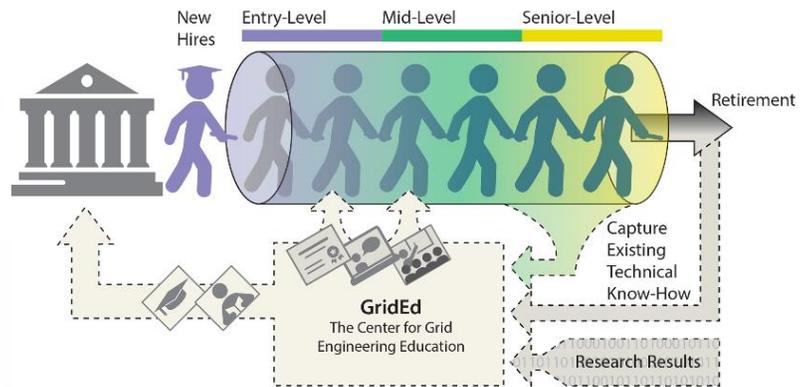


# GRIDEd

The Center for Grid Engineering Education

## 2017 GridEd Report

In 2013, the Department of Energy (DOE), through its Solar Energy Technologies Office, awarded to EPRI a project known as Grid Engineering for Accelerated Renewable Energy Deployment (GEARED). In response EPRI created what is known as GridEd—The Center for Grid Engineering Education. In 2016 the DOE granted EPRI and expansion for a formal program in the western U.S. known as STEP—Solar Training and Education for Professionals. The two grants resulted in an eastern U.S. initiative and subsequently a western U.S. initiative. The respective names for these efforts are GridEd-East and GridEd-West. Separate organization efforts reflect the regional differences in the philosophies of eastern and western organizations. GridEd is comprised of EPRI, our seven (7) partner universities (Arizona State University, Clarkson University, Georgia Institute of Technology, Portland State University, University of California—Riverside, University North Carolina—Charlotte, and University of Puerto Rico Mayaguez), and participating utility sponsors.



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Utility Advisors	
GridEd-West	GridEd-East
Arizona Public Service	Central Hudson
Bonneville Power	CPS Energy
Pacific Gas & Electric	Consolidated Edison
Portland General Electric	Duke Energy
Salt River Project	Entergy
Snohomish PUD	FirstEnergy
Southern CA Edison	LG&E and KU
Tri-State G& T	Lincoln Electric System
Western Area Power Authority	National Grid
Xcel Energy	New York Power Authority
	Southern Company

### Leveraging the Industry

Launched by a five-year, \$5.2 million investment from DOE, along with a cost-share commitment from 21 sponsoring utilities and 7 university partners, GridEd poised to invest \$7.7 million dollars into power engineering education and workforce development through 2018. GridEd leverages electric industry research through EPRI and university engagement to educate a future electric grid workforce. The objective is to empower new and continuing education students not only to become competent and well-informed engineers but also to participate and influence major technological, social, and policy decisions that address critical global challenges. Additionally, GridEd connects its utilities, universities, and students with the larger GEARED network consisting of an additional 12 universities, 8

utilities, 13 industry representatives, and 2 national labs. Collaboration within the GEARED network consists of shared student conferences, innovation boards, and networking events as well as three working groups focused on university curriculum development, training programs for practicing engineers in the utility industry, and professional development of university faculty.

### Affiliate Universities

The GridEd approach to expanding the knowledge base through a network is to provide ready access to state-of-the-art training materials to a wide university audience. The electric utility industry has a historical practice of hiring employees from local and/or regional universities. The GridEd approach is to improve the quality of future employees and create a partnership between the utility and its area and regional universities. As such, one of the most exciting aspects of GridEd is the establishment of an

Partner and Affiliate Universities	
GridEd-West	GridEd-East
California Polytechnic State University	Case Western Reserve University
Colorado School of Mines	Clemson University
New Mexico State University	Louisiana State University
Oregon Institute of Technology	North Carolina State University
Oregon State University	Rensselaer Polytechnic Institute
Sacramento State University	SUNY - New Paltz
University of California-Irvine	SUNY Buffalo State
University of California-Los Angeles	Syracuse University
University of Colorado-Denver	University of Akron
Washington State University-Pullman	University of Alabama-Birmingham
Washington State University-Vancouver	University of Louisville
West Texas A&M University	University of Nebraska
Western Washington University	University of New Orleans
	University of Texas - San Antonio
	University of the Incarnate Word

Affiliate university program through our utility sponsors as an extension of the university network. Affiliate universities have many opportunities to engage the GridEd program through shared course materials, Student Innovation Boards, discounts to GridEd short courses (sometimes at no cost), and GEARED student conferences.

### Curriculum Sharing and Network Design

To date, the 7 GridEd partner universities have revised 16 courses and created 14 new courses in their undergraduate and graduate degree programs. At the end of 2017, a total of 9,634 students have enrolled in power courses at partner university of GridEd. Course materials such as power point slides, lecture notes, homework assignments, and exams have been uploaded to GridEd's SharePoint repository for access by Affiliate universities as well as Partner universities. Further, a technology transfer workshop for Affiliate universities was conducted in Dallas, Texas in April, 2017 where 17 university professors assembled to share GridEd products developed to date.

### Student Engagement

Attracting and preparing students for the electric power industry is at the core of GridEd's mission. In 2017, GridEd engaged the next generation of power engineers through a variety of mechanisms.

- 1) The Student Innovation Board (SIB) is composed of 12 student leaders from GridEd-East and 10 student leaders from GridEd-West. Several highlights of the SIB include conference calls, hosting and presenting at IEEE PES roundtable meeting on GridEd bi-monthly webinars and free discussion sessions. Check out the list of our SIB leaders on the GridEd website - <http://gri ded.epri.com>.
- 2) Student design projects and student conferences give students the design, collaboration, and communication experiences needed to succeed in the workforce. In 2017, GridEd started offering financial support to undergraduate design projects related to the power industry at Affiliate universities. Five project proposals were awarded up to \$5k, impacting 62 students. Further, students were encouraged to attend conferences such as DistribuTECH in San Diego, CA where students presented posters of their work and explore the conference exhibit hall.
- 3) K-12 outreach activities such as an Energy Pathways Curriculum for high school teachers (in English and Spanish), Discover Engineering Day for children age 10 through 16 to raise STEM awareness, and other outreach seminars in the local communities.

### HR Committee Activities

The purpose of the Human Resources Committee is to discuss issues of workforce development for electric utilities through a shared exchange of ideas. The committee became active in 2017 has met on a monthly basis with 21 HR committee representatives from 15 utilities. Key issues of discussions have included:

- Recruiting and Retention
- Attracting Power Engineers
- Student Loans/Sign On Bonuses
- Relocation/Temporary Living
- Benefits/Total Compensation
- Flexible Work Schedules
- Employee Development and Educational Assistance
- What they are looking for in a hire – public speaking, problem solving skills, self teaching, resilient, quality work, relational, be there when you are needed

### Professional Short Course Program

GridEd continues to provide training for practicing engineers and expanded its short course library to include Electric Power Quality and Business Case Analysis. Popular courses continue to be Energy Storage and DG Interconnection on Radial Distribution Systems. Through 2017, GridEd has educated 715 participants through 32 short courses and workshops. GridEd's library of offerings consist of 13 short courses with 3 additional courses slated for development in 2018. For more information visit: <http://gri ded.epri.com/courses.html>

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