

Grid-Ready Energy Analytics Training with Data

GREAT with Data

Tom Reddoch – PI

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Role of Team Members

Name	Principle Investigator	Role
Electric Power Research Institute	Tom Reddoch	Prime, Project Manager, Organize Utility Advisory Committees, Conduct Gap Analyses, Execute Professional Training, Tech Transfer, Course Repository
University of California, Riverside	Eric Yu	<ul style="list-style-type: none"> University curriculum gap assessment Develop and deliver new and revised materials for undergraduate and graduate curricula at the intersection of power systems and digital systems. Co-develop a basic course on digital power systems
Stony Brook University	Zhenhua Liu	
Virginia Tech	Chen-Ching Liu	
Washington State University	Anamika Dubey	
University #5	TBD	
Independent Evaluator (TBD)	TBD	Evaluation and Metrics
Additional Subrecipients (TBD)	TBD	Develop and deliver professional training courses
Electric Utility Project Participants (many)	Committee Chair	Provide an Advisory structure to the overall project, nominate Affiliate universities, & source funding

Background

Electric Power Research Institute



Power Delivery and Utilization



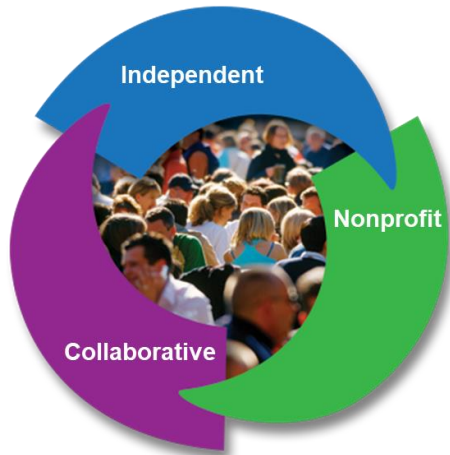
Generation



Nuclear



Energy and Environment



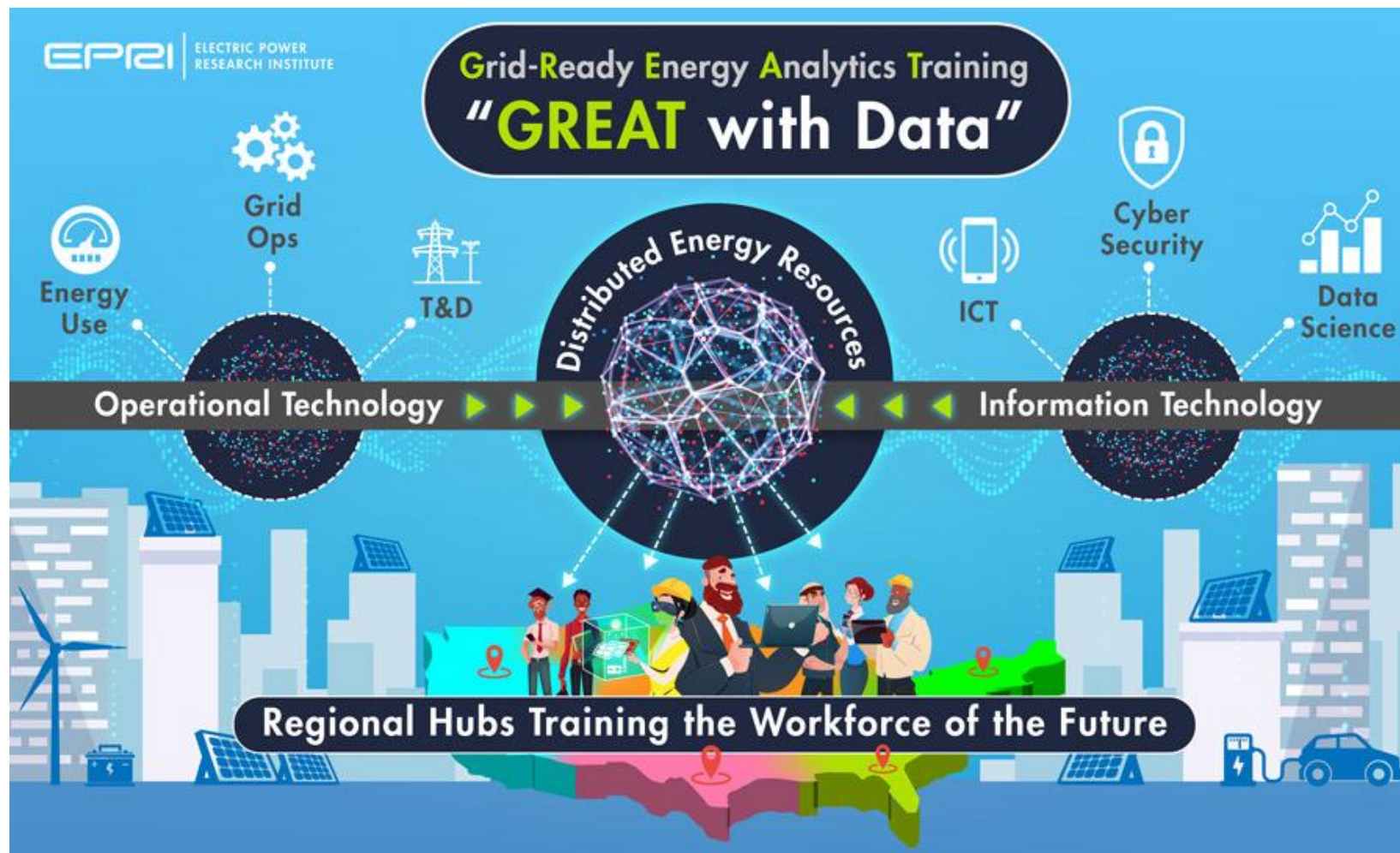
Universities



Electric Utilities

American Electric Power, Austin Energy, Con Edison, Duke Energy, Entergy, First Energy, Lincoln Electric System, New York Power Authority, Portland General Electric, Riverside Public Utilities, Salt River Project, Snohomish Public Utility District, Southern California Edison, Southern Company, Tennessee Valley Authority, and Western Area Power Authority

The “GREAT with Data” Initiative



The GREAT with Data initiative will help merge grid Operations Technology (OT) and Information Technology (IT) to enable the integration of distributed energy resources (DER), especially solar, through enhanced industry coordination and workforce readiness initiatives by training, educating, and recruiting qualified personnel into the electric utility industry.

The “GREAT with Data” Initiative – Key Activities

Intersection of digital systems and power systems with focus on DER Integration

Core Elements

- Technical and Human Resource Advisory Committees
- Training Evaluation Pilot
- Regional Training Hubs
- Data Analytics Center of Excellence
- Workshops, Seminars, Conference Engagements

Industry Professionals

- Credentials & Certifications
- Professional Training Courses and Workshops
 - *Cyber Security*
 - *Data Science*
 - *DER Integration*
 - *Information & Communication Technologies*
- Distribution Operations Simulator Training Modules
- AR/VR Training Modules

University Curriculum & Students

- New and Revised University Courses
- Co-developed Course - *Introduction to Digital Power Systems*
- Undergraduate Design Projects
- GEARED Course Repository

The “GREAT with Data” Initiative – *Key Objectives and Outcomes*

Budget Period	Description	Key Objectives and Outcomes*
1	Develop a robust training program with regional execution through technical and human resource advisory committees, an evaluation pilot, and gaps assessments to fill training and education needs. an education and training roadmap.	<ul style="list-style-type: none"> • Establish 5 regional training hubs; • Develop credential and certification requirements in 4 key specialist areas, • 40 trainees in evaluation pilot • Publish an education and training roadmap for a workforce at the intersection of power systems and digital systems.
2	Offer professional training courses through multiple and innovative methods. Provide new and revised courses in regular university programs.	<ul style="list-style-type: none"> • Issue 1,080 professional development hours • Train 60 unique individuals • 5 new/revised university courses • Teach 50 under/graduate students • Launch Data Analytics Center of Excellence
3	Grow a robust training program in data science, cyber security, information & communication technologies, and DER integration.	<ul style="list-style-type: none"> • Issue 2,880 professional development hours • Train 160 unique individuals • 8-10 certified individuals • 8 new/revised university courses • Teach 100 under/graduate students • 3% job growth and retention from baseline
4	Expand number of universities, students, and professionals who engaged in education at the intersection of power systems and digital systems.	<ul style="list-style-type: none"> • Issue 7,200 professional development hours • Train 500 unique individuals • 50 certified individuals • 9 new/revised university courses • Teach 150 under/graduate students • 5% job growth and retention from baseline

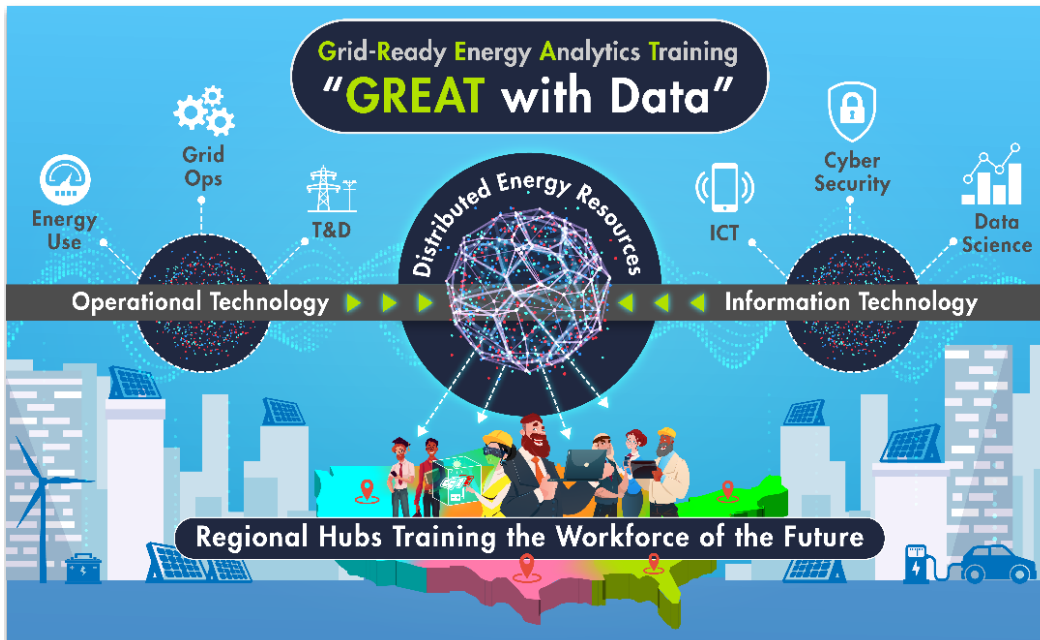
**Numbers indicate program totals including those from prior budget periods*

Grid-Ready Energy Analytics Training with Data

EPRI's "GREAT with Data" Initiative

Project Summary

EPRI's *GREAT with Data* initiative will enhance workforce readiness through training and education in the electric utility industry with a focus on the intersection of power systems and digital systems to enable the integration of distributed energy resources (DER), especially solar. The project will develop creative commons educational materials and deliver professional training courses and university curriculum content in the areas of data science, cyber security, information and communication technology, and DER integration. Target audiences for this training includes executives, engineers, and other emerging roles such as data scientists in the power industry. Through collaboration with electric utility and university partners, this initiative will develop certifications, credentials, qualifications, and standards for the training and education needed in the electric utility workplace. The project will also develop a repository for the previous GEARED university curriculum products.



Key Personnel/Organizations

Thomas Reddoch - Principal Investigator (EPRI)
Dr. Nanpeng (Eric) Yu - University of California, Riverside
Dr. Anamika Dubey – Washington State University
Dr. Chen-Ching Liu – Virginia Tech
Dr. Zhenhua Liu – Stony Brook University

Key Milestones & Deliverables

Year 1:	Identify workforce needs. Training & evaluation pilot. Develop the historical GEARED curriculum repository.
Year 2:	Develop standards and credentials. Regional training hubs
Year 3:	Analytics Center of Excellence. Online training repositories
Year 4:	Delivery through regional hubs, conferences, & workshops
Year 5:	Expand delivery and train the trainer activities

Project Impact

Train an electric utility workforce to collect, transmit, store, secure, analyze, interpret, and make intelligent decisions from a wide range of data resources. A reliable and resilient grid of the future will require a competent data and power systems workforce to setup robust and secure data collection, communication, and archiving infrastructure. It will also require executives, engineers, planners, and operators with the data analytics knowledge and toolsets to make intelligent and actionable decisions. This initiative is committed to transforming a novice electric utility workforce to be *GREAT with Data*.

Transform the grid of the future by training the utility workforce to be "GREAT with Data"