

POWERLINE

The Voice of the On-Site Power Generating Industry

Q1 23



Electrical Generating
Systems Association
PO Box 73206
Washington, DC 20056



PSRST STANDARD
U.S. POSTAGE
PAID
FORT LAUDERDALE, FL
PERMIT #1956



EGSA's Power Schools cover the theory and practice of all the components within a generator system. All course modules are led by volunteer industry experts in a non-brand specific, generic format. School registration includes a copy of the 5th edition of **On-Site Power Generation: A Comprehensive Guide to On-Site Power**, a 700-page reference book that covers all aspects of On-Site Power Generation.

Basic School

Perfect for staff new to the power generation industry or someone who needs an introduction to basic concepts and technologies, this school is appropriate for students seeking a foundation in generator technology. Whether you are in sales, marketing, management, application engineers, engine technicians, or administrative personnel, you will find great value in this course! The Basic School is a general, yet technical, overview of On-Site Power.

COURSE MODULES INCLUDE:

- Introduction to EGSA
- Basic Electricity
- Prime Movers
- Introduction to Generators/Alternators
- Starting Systems
- Introduction to Automatic Voltage Regulators
- Introduction to Governors/Speed & Load Controls
- Introduction to Transfer Switches
- Load Bank Fundamentals
- Generator Set Instrumentation
- Codes and Standards
- Generator Set Systems: Putting the Pieces Together
- Understanding Bid and Specification Documents

Advanced School

Our Advanced School is designed for those who have a good understanding of the basic mechanical and electrical systems found in an on-site generator site. A minimum of three years of experience in the industry is recommended. It will be particularly useful for those employed in engineering, project management, service positions, and business owners.

COURSE MODULES INCLUDE:

- Advanced Generators/Alternators
- Generator Set and Critical Power System Controls
- Generator and System Protection
- Advanced Automatic Voltage Regulators (AVRs)
- Advanced Governors/Speed and Load Controls
- Advanced Transfer Switches
- Multiple Generator Paralleling Switchgear
- Engine Emissions
- Noise Control
- Communications
- Advanced Generator Systems: Sizing to Service

Visit our website at [EGSA.org](https://www.egsa.org) for additional details on the EGSA George Rowley School of On-Site Power Generation.



2023 BASIC SCHOOL SCHEDULE

Orlando, FL — February 20-23

Virtual — April 10-13

San Diego, CA — October 9-12

Virtual — December 11-14

2023 ADVANCED SCHOOL SCHEDULE

Chicago, IL — May 22-25

Virtual — June 26-29

CONTENTS

COLUMNS

From the Top	3
Message from the EGSA Chair	
Education	4
What's New in EGSA Education	
Distributed Generation.	6
The Path to Zero: Solving the Interconnection Bottleneck	
Committee Highlight.	9
Dealer/Distributor (DD) Committee	
People Management	10
What Causes Up to Two-Thirds of Your Voluntary Turnover?	

FEATURES

White Paper.	12
Microgrids with Propane-Fueled Backup Systems Deliver Reliable, Resilient Power	
Case Study.	15
Achieving Power System Balance	
2023 EGSA Spring Conference Preview	17
Schedule At-A-Glance	
Company Profile	19
Kelly Generator & Equipment (KGE)	
2022 Technician of the Year Award (TOYA) Winner	21
Rustin Riss	

EGSA NEWS

Calendar of Events	2
Job Bank	11
Tech Certification Map	23
EGSA Membership Application	25



Advertiser Index

Robinson Inc.	8
Penn Power Systems	8
Pritchard Brown.	11

Power-Tronics	11
AKSA Power Generation	22

Universal Load Banks	23
Teksan USA.	24

2023 EGSA Officers

Chair

Justin McMahon,
Nidec/Leroy-Somer/Kato Engineering

Vice Chair

Hal Walls, MineTerra Corporation

Secretary

Dan Barbersek, Waukesha-Pearce Industries

Treasurer

Lee Newton, Bay Diesel Corp.

2023 EGSA DIRECTORS

Kendall Archer, Mall Energy

Sean Collins, Governors America Corp.

Charlie Habic, Gillette Generators

David Jesberger, United Rentals

Justin Mitros, ASCO

Mark Provoznik, Universal Load Banks

Jim Saunders, MurCal

Chad Youkers, Sunbelt Solomon

EGSA STAFF

Mir Mustafa, CEO

Marc Charon, COO/CFO

Nathan Harris, Director of Education

Gwynn Breckenridge, Director of
Conferences & Events



Electrical Generating Systems Association

PO Box 73206

Washington, DC 20056

561-750-5575

e-mail@egsa.org • EGSA.org

SERVICE INFORMATION

For Subscriber orders, change of address,
reprints, and back issues (when available),
contact:

PO Box 73206

Washington, DC 20056

561-750-5575

e-mail@egsa.org • EGSA.org

Powerline is published four times per year on a quarterly basis. Articles and information submitted for publication should be forwarded to the attention of the Editor at the address above 30 days prior to publication. Technical articles and articles of general interest to the electrical generation industry are actively sought and encouraged. Powerline reserves the right to limit information appearing in its pages to that which, in its sole discretion, will reflect positively on EGSA and the industry which it serves. Throughout every issue of Powerline, trademark names are used. Rather than place a trademark symbol at every single such occurrence, we aver here that we are using the names in an editorial fashion only. EGSA has no intention of infringing on these trademarks.

CALENDAR OF EVENTS

FEBRUARY

EGSA at PowerGen

Orlando, FL

- **Feb 20-23**
EGSA Basic School of
On-Site Power
- **Feb 21**
EGSA Power Party at Top Golf

MARCH

Mar 12-14

EGSA Spring Conference

Las Vegas, NV

Mar 13

Engineering Symposium

APRIL

Apr 4-6

Load Bank School & Certification

Atlanta, GA

Apr 10-13

EGSA Basic School of On-Site Power

(Virtual School)

MAY

May 22-25

EGSA Advanced School of On-Site Power

Chicago, IL

JUNE

Jun 26-29

EGSA Advanced School of On-Site Power

(Virtual School)

JULY

Jul 18-20

Load Bank School & Certification

Houston, TX

AUGUST

No Events on the Schedule

SEPTEMBER

Sep 5-7

Load Bank School & Certification

Atlanta, GA

OCTOBER

Oct 1-3

EGSA Fall Conference

San Antonio, TX

Oct 2

Engineering Symposium

Oct 9-12

EGSA Basic School of On-Site Power

San Diego, CA

NOVEMBER

No Events on the Schedule

DECEMBER

Dec 11-14

EGSA Basic School of On-Site Power

(Virtual School)

Message from the EGSA Chair

I hope that each of you is well on your way towards making 2023 another record year for the onsite power industry. While I know that most are swamped at the office, I hope you will make time to join us at the upcoming conference in Las Vegas March 12-14 as it is the sharing of your expertise and perspectives that makes each one a success. Since we closed the conference in Minneapolis, our EGSA staff have been busy ensuring that Las Vegas will be our best conference yet, and our generous corporate event sponsors have made it possible to welcome Kevin O'Leary as our Monday keynote speaker! I look forward to seeing you all there.

At our conferences, our goal is to deliver a program that provides members with increasing opportunities for education and networking, as well as to add new programs that deepen member value. One of the key initiatives for us in 2023 has been the reformatting of our working committees. As we work to strengthen the core competencies of the organization, we recognize the importance of our committees and the value that their work delivers to the broader industry. Each of our committees is intended to provide a forum for our members to share their knowledge, as well as a mechanism for providing input and direction on matters affecting the on-site power generation industry. As we look to our future, there is no doubt that the continued electrification of our society will deliver change to the on-site and distributed energy industries, and that our EGSA committees will play a critical role in representing each of your perspectives as the unified industries' voice. We need you as a contributor to that voice, please consider joining one of the committee meetings on Sunday afternoon.

When we are together in Las Vegas, life will be starting to emerge from winter and demonstrate renewal, rejuvenation, and regrowth, and I am happy to say that the same is happening within EGSA. While the last several years have presented each of us with trials, we are now powering into a 2023 filled with hope, optimism, and opportunity. Our industry enables life to advance and thrive, and I believe that spring is an excellent reminder of the need for forward motion and the power of energy. Let's use 2023 as the opportunity to channel our collective motion and energy into transforming the future of this industry.

I am honored to greet you as the 2023 EGSA Chair, and I thank you all for your contributions to our organization. ●

With gratitude,

Justin McMahon
EGSA Chair



Justin McMahon
EGSA Chair



Nathan Harris
*EGSA Director
of Education*
n.harris@EGSA.org

What's New in EGSA Education

2023 is bringing some exciting changes, designed to drive much greater value for our members, to EGSA's educational program. Almost every piece of our education puzzle is getting an upgrade, overhaul, or reimagining.

First, let's take a look at the Technician Certification program. Last summer, both the Apprentice and Journeyman test were reviewed by Ferris State University and a panel of subject matter experts. We were able to identify and correct issues that could only be confirmed through a complete data analysis of previously taken tests. For instance, if a question had two answers that included one correct option but also an option that "under the right circumstances" could also be correct, we were able to rectify those answer options to be clearer. A large part of the Apprentice test revision was updating the material to reflect where technology is today, not five years ago. The newest version of the Apprentice test launched at the end of 2022, and we have already seen positive results since its launch.

For the Journeyman test, we completed the same review and revision process as the Apprentice test. However, the process

- **Modules:** In the past, technicians were given four hours to take the 200-question Journeyman test. Now the test has been broken into four modules and technicians will have one hour to complete each module.
- **120-Day Testing Period:** Technicians will now have 120 days to complete all four modules. You may take them all at once or spread them out, based on personal preference.
- **Second Chances:** Within the 120-day test period, technicians will be allowed two chances to pass each module. In the past, many technicians who failed the Journeyman test did so by a very small margin, perhaps falling short in one section of the test. Now technicians who fail a module will have the opportunity to only retake the module they failed, as opposed to the whole exam.

We have also overhauled the process of recertifying for technicians who are currently certified Journeyman. Passing the Journeyman test establishes that the technician is a well-qualified and extremely knowledgeable. In recognition of that fact, EGSA will now allow currently certified Journeyman to recertify by submitting Recertification Credits (RCs) as opposed to having to retake the exam. These are training/education credit hours that EGSA will recognize to establish the continuation of knowledge. 15 RCs can be submitted to extend the Journeyman certification for one year, and 30 RCs can extend the certification for two years. Journeyman will only be allowed to extend up to two years at a time using recertification credits. Journeyman technicians will still have the option to retake the journeyman test and extend for an additional five years. For a list of qualifying RCs and how to submit them please see the Certification FAQ page at <https://egsa.org/Certification/FAQs>. Individuals who prefer retaking the exam to recertify can do so for a five-year extension of their certification.

Outside of the Tech Certification program, EGSA has already begun adding to its library of online content. One of which is the EGSA Prep program by Prime

Power. EGSA Prep is online curriculum designed to help technicians prepare for the Apprentice and Journeyman tests. The online curriculum include 25+ courses that focus on all the topics that appear in the Apprentice and Journeyman tests. This online program is great for technicians who would like to learn about the topics and engage in test prep that works around their schedule.

EGSA has also partnered with UL and is now offering UL courses that include OSHA 10, OSHA 30, and many others. For nearly a decade, hundreds of employers and thousands of employees have looked to UL as the trusted source for OSHA-authorized Outreach Training. Many organizations choose OSHA Outreach Training as their baseline training standard because of its quality and standardization. OSHA Outreach Training provides employers with quality control for employees' health and safety on the job. Online training providers are required to meet OSHA's stringent quality control measures, which limits the number of authorized providers. EGSA is proud to have partnered with UL who works tirelessly to meet these measures and provide these courses to our members.

Currently, we are also looking to update the George Rowley Schools of On-Site Power. The education committee, along with instructors from the school, and a few subject matter experts are currently working on reviewing and reimagining both the Basic and Advanced schools. The goal is always to provide the latest and most relevant education offerings to our members, and this is a great step in that direction. Also after a very successful online Basic Rowley School in 2022, we are happy to announce that we are scheduling two Online Basic Schools in 2023 (April, December) and one Online Advanced School (June). The in-person schools will also continue with two In-Person Basic Schools (February, October) and one In-Person Advanced School (May).



Access is a priority for EGSA this year so we will also be offering the Rowley Schools in multiple formats directly for your organization. This year we can offer Rowley Schools that are exclusively for your organization in multiple formats: In-Person, Online live sessions, Online Pre-Recorded Sessions, a combination of In-Person and Online, and Ala-Carte of Basic/Advanced modules. For more information about these options contact Nathan Harris at n.harris@egsa.org.

At the 2022 Fall Conference EGSA introduced the Engineering Symposium. This two-day training event ran concurrently with the conference education sessions and was a huge success. Because of this, we will be offering the Engineering Symposium again this year at both the Spring and Fall Conferences. For information on the session topics please visit EGSA's conference event page for each conference.

For more information about dates of all the events listed in this column please see page 2 for our calendar of events. You can also find more information at www.egsa.org or contact Nathan Harris directly at n.harris@egsa.org. ●

Nathan Harris
Director of Education

The Path to Zero: Solving the Interconnection Bottleneck

A New Solution for Distributed Energy and DCFC



James Richmond
CEO e2Companies

A Practical Paradigm Shift

To achieve America's stated goals of transforming our power supply, we must move from theory to practical measures. This includes the design of our grid and the distributed energy resources needed to generate electricity at the local level. According to a recent article from the Distributed Energy Task Force, "The grid of the future will be built from the bottom up, driven by new technologies¹."

Despite these realities, we are still grappling with traditional conventions of our overextended and aging power grid, including electric utilities and interconnection agreements. In a recent study², 90% of renewable developers said that interconnection timelines and costs represented the biggest barrier to achieving 40% solar by 2035, a goal of the U.S. Department of Energy.

In particular, the PJM grid region's interconnection bottleneck is growing to unprecedented levels and interconnection agreements in the MISO and SPP grid regions are at a virtual standstill due to cost debates. Developers stand to pay for more than 90% of these costs, even though such upgrades bring system-wide benefits for power generation, increased grid reliability, and lower utility rates.

These bottlenecks, named "interconnection queues" are slowing America's energy transformation³ and the country's ability to innovate with new technologies.

What if we removed the queue?

Welcome to Virtual Utility®

The solution for this reality is Virtual Utility®. The first utility-grade network

designed for the end user without the need for an interconnection agreement. No more waiting in a line that is getting exponentially longer across grid regions.

e2Companies' R3Di® system (pronounced 'Ready') creates a Virtual Utility® and solves for grid power interruption with new benchmarks for transient response (ISO8528) independent of the service feed behind the meter. The R3Di® is a prime power solution, with UL 9540 certification and LifePo4 battery storage. As the world's first Virtual Utility®, the R3Di® provides both power generation and energy storage, with 24x7 asset monitoring and market optimization.

The R3Di® can integrate power from any source, without needing an interconnection agreement. This drives real-time flexibility and energy autonomy for facility managers and business owners.

Level 3 EV Fast Charging (DCFC)

America's EV goals further increase the divide between theory and practical reality. By 2030, more than half of vehicles sold will be EVs, which means we'll need approximately 1.2 million additional chargers⁴ outside of residences to supply these EVs with adequate power.

Currently, there is a lack of public charging stations and those that do exist struggle with reliability and availability. A large percentage of public EV chargers are out of service at any given time.⁵ And those that are operational often have long wait times.

Of the various levels of charging stations, Level 3 EV Fast Charging



(DCFC) can recuperate up to 80% of an electric vehicle's range in as little as 30 minutes.⁶ While currently the most powerful, DCFC still has major challenges toward widespread adoption. In most cases, DCFC requires costly infrastructure upgrades from the utility company, expensive demand charges, and ongoing costs to maintain the chargers and keep them running efficiently.⁷

What if we had a system that addresses these challenges at the edge of the grid?

Integrated Design for EV Fast Charging

The R3Di[®] system integrates with current EV and fleet chargers, adding seamless resilience to new and existing providers. There's no impact to the provider facility as the system only uses excess capacity for charging. For example, if a facility's 's highest site load is 500kW, e2 Companies can install two 180KW DCFC stations (4 total chargers) to meet the customers' needs.

The R3Di[®] serves as the foundational building block for future energy projects and ensures seamless resiliency for our customers. In addition, e2Companies owns risk management, environmental indemnification, and provides system health monitoring as part of an energy service agreement (ESA). The average length of these service agreements is 15 years.

Distributed Energy: The Future is Here

Our electric grid was originally designed based on technology constraints that no longer exist. Load requirements on the grid have increased exponentially, even before the EV

marketplace accelerated over the last decade. Fast forward to 2023, our grid is being pushed to the breaking point with many regions at high risk for energy shortfalls over the next 5 years.⁸

The good news? A new paradigm for market design has emerged in the form of Distributed Energy resources (DERs). Distributed Energy resources like Virtual Utility[®] do what the centralized grid cannot, by delivering consistent voltage and increased responsiveness for the end user at the same location where the electricity is being used. The future design optimizes flexibility and resiliency for all of us.

The Road Forward with e2Companies

Now is the time to join this movement while you still have a competitive advantage. Are you R3Di[®] to be part of the paradigm shift towards Virtual Utility[®]? Are you R3Di[®] to position your company as a driver on road to integrated and independent EV fast charging?

Contact us to learn more about the exciting road ahead. Including specific training on our system and how to become a preferred channel partner or long-term service provider for our customers. ●

www.e2companies.com
www.linkedin.com/company/e2companies/

James Richmond
CEO e2Companies

-
- ¹ DER Task Force: Age of the Electron
 - ² LevelTen Energy: Market Insights
 - ³ Washington Post: Blocking Clean Energy for Millions
 - ⁴ McKinsey & Company: EV Charging Infrastructure
 - ⁵ J.D. Power Electric Vehicle Experience (EVX) Study
 - ⁶ Clipper Creek: Level 3 EV Charging Stations
 - ⁷ Property Manager Insider: Facility Management
 - ⁸ CNBC: High Risk of Electricity Shortages

PEACE AND QUIET

With Robinson, you can count on peace of mind with our critical sound reduction packages for diesel and natural gas gen sets. Call today to learn more about our single-source solutions.



P.O. Box 5905 | De Pere, WI 54115-5905
920.494.7411 | www.robinsoninc.com
De Pere | Manitowoc



JOIN THE PENN TEAM



Visit pennpowersystems.com
Contact Us Today! Call 1-877-PEN-POWER

We Really Do Handle It All.

Penn Power Group maintains a Drug Free Workplace and is an Equal Opportunity Employer. Applicants are considered for employment to race, color, religion, sex, age, disability, national origin, sexual orientation or any other basis prohibited by law. This employment including selection, job assignment, compensation, discipline, termination and access to benefits and training.

COMMITTEE HIGHLIGHT

Dealer/Distributor (DD) Committee

Each Quarter will highlight one of our committees to give our members insight on their current initiatives, key priorities and how to get involved.

Who makes up the DD Committee and what is their mission? The Dealer/Distributor Committee is made up of ownership, service personnel, sales professionals, and others, along with their supplier network that impact the success of a dealer/distributor organization regardless of brand, geographic location, or company size.

Active membership participation directs the ongoing efforts of committee leadership and committee volunteer contributions to provide valuable presentations, documents, and interactive mediums to ensure the success and excellence of D/D organizations and its stakeholders.

"We focus on developing solutions to overcome industry challenges that arise in the common pillars of a D/D such as Service & Operations, Sales & Marketing, Business Development, Finance, Human Resources through collaborative platforms that focus on Safety, Employee Development, Best Practices, Innovative Technology, and Industry Regulations, in order to enhance the D/D's Customer Experience."

—Jordan Rohrer

What are some the DD Committees past accomplishments and what are the goals for 2023? One of the longest tenured initiatives of the D/D has been the TOYA award because it emulates the entire mission of EGSA. The best Technician is that person who exemplifies the best of the best of what our industry represents. They are professional, knowledgeable, well-equipped individuals that serves our communities to ensure that our power generation systems are maintained and online. Many of the D/D initiatives support giving all technicians the opportunity to be the TOYA award winner. Past goals have included, Safety initiatives, Fuel policy & remediation best practices, Technician retention, and recommending quality presentations for the EGSA Conferences that positively impact our members.

For 2023, the Committee goals are to continue to provide added value to the monthly meetings through mini-educations sessions focused on D/D issues, redesign the TOYA award to make it more effective, and identifying additional strategies to return value to attendees, and member companies.

What value is added by joining the DD Committee? The Intent of the D/D is give back to its members, by creating real tangible best practices and action items that can be taken back to our respective organizations that directly impact their bottom line. As an attendee, your participation is welcome and desired, and the relationships that are built through this committee can be foundational to personal transformation.

How can a member participate? Monthly calls are scheduled for the 3rd Monday of every month at 1:30pm eastern. Contact EGSA staff or Committee Leadership for more information.

Final Thoughts: The D/D committee has historically been the heartbeat of EGSA. As EGSA continues to emerge from its transition and reorganization, now is the time to get involved on the ground floor and be at the forefront, not only in EGSA but in our industry at large. ●



Jordan Rohrer
The Power Connection
Committee Chairman
jrohrer@tpcgenerators.com



Dane Olson
Gen-Tracker
Committee Vice Chairman
dane@gen-tracker.com



Robert Bono
Johnson Matthey Stationary
Emissions Control
Committee Secretary
bonorp@jmtusa.com

PEOPLE MANAGEMENT

What Causes Up to Two-Thirds of Your Voluntary Turnover?

Regardless of the industry, great candidates don't grow on trees. Our economy has had some significant shifts over the last decade. One thing that seemed to stay consistent has been every business's need to attract and retain great people. You won't have to look very hard to find some sort of article referencing the shortage of skilled workers that so many organizations are experiencing. As I served a four-year term on the executive committee of one of Virginia's largest and most effective regional workforce development boards, I saw this issue impact nearly every industry at almost every level.

In late 2019, when unemployment was around 2.6% in our region, I made a statement to a group of business owners that caused them to look at me like I had an elbow growing out of my forehead. I told them that I knew what they could do to have the best talent in their industries asking to join their teams and leave the staffing issues for their competitors to worry about. I made that statement with complete confidence then and the scenarios we've lived through since have only confirmed what I knew to be true!



Wes Dove, SHRM-CP/CHBC
Owner, Dove Development
www.dove-development.net

Just before the 2008 recession, John Maxwell wrote a book called *Leadership Gold* where he shared this statement:

"Some sources estimate that as many as 65% of people leaving companies do so because of their managers... The 'company' doesn't do anything negative to them. People do. Sometimes coworkers cause the problems that prompt people to leave. But often the people who alienate employees are their direct supervisors."

In now more than two and a half decades of building and developing teams, I've almost always seen the responsibility for recruiting and retaining talent placed squarely on the shoulders of whoever wears the HR hat, and that's assuming someone is actually wearing that hat in a smaller company... While that individual certainly plays a key role in the process, if the company is indeed large enough to have someone dedicated to HR, there are a few simple (notice I didn't say easy) things that everyone who holds leadership responsibility can do to make a positive impact on how the organization attracts and keeps the best talent in their field.

The overall compensation package is certainly *a factor* but that's rarely *the factor* in building a great team. I've found that there are some simple skills we can develop in the folks who hold leadership responsibility that make an immediate impact. As I mentioned earlier, building this into your company culture IS NOT easy – but dealing with constant turnover and/or being perpetually short-handed ain't easy either! The challenge I've seen though is that these critical skills are too frequently lumped into the soft category and rarely tracked with regards to how they impact the bottom line. When provide our supervisors, managers, and executives with practical tools they can immediately apply in their daily routine, and we set clear expectations for the results we need as they take action using those tools, then we just need to make a few changes to what we're measuring in order to see the impact effective communication and authentic leadership has on employee engagement, productivity, and our overall profitability.

I maintain this really boils down to just a few simple things we can all do differently to create an atmosphere where our best team members actively recruit on our behalf and maintain high expectations for everyone around them. Implementing these simple steps though will require intentional action as well as an investment of time and resources, but fighting a revolving door sucks up plenty of time and resources too...

The atmosphere we create as the leaders in our organizations will play a critical role in determining what our recruitment and retention process looks like. And just like any new piece of equipment we purchase to help our teams be more effective, the only way we have a shot at seeing real improvement is by providing clear guidance to develop those different (but equally important) skills, helping sustain the new behaviors that will need to be initiated, and hold our leaders accountable for maintaining these changed behaviors moving forward. If it were a tool we purchased, it wouldn't be acceptable to leave it in the truck. The tools for developing our leaders should be viewed the same way, and that will impact recruitment & retention! ●

EGSA Job Bank Guidelines

EGSA will advertise (free of charge) EGSA Member company job openings in the Job Bank. Free use of the Job Bank is strictly limited to companies advertising for positions available within their own firms. Companies who are not members of EGSA and third-party employment service firms who service our industry may utilize the Job Bank for a \$300 fee. Blind box ads using the EGSA Job Bank address are available upon request; company logos may be included for an additional fee. EGSA reserves the right to refuse any advertisement it deems inappropriate to the publication. To post an EGSA Job Bank ad (limited to approximately 50 words) please visit EGSA.org/Careers.aspx.



For Over 75 Years Setting the Standard...



Inside and Out.



"Pritchard Brown's greatest strength: Our People."

Rick Grambo
Vice President of Sales & Engineering

Since 1947, Pritchard Brown has been leading the industry, providing state-of-the-art protective enclosures and system integration services. We utilize our team of experienced craftspeople, the latest technology, and customer feedback to build the best sound attenuating onsite power packages in the world.

Learn more at PRITCHARDBROWN.com or call 800.231.2258

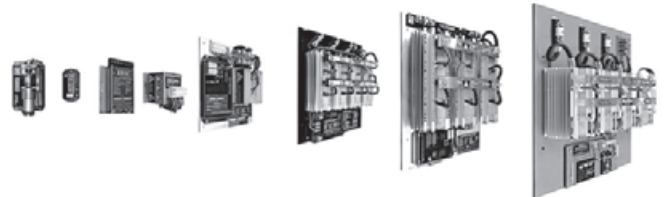
STATE-OF-THE-ART SHELTERS AND SYSTEM INTEGRATION



PRITCHARD BROWN

POWER-TRONICS™
Electrical Power Controls

Serving the Electrical Generator Service and Repair Industry since 1989



- Universal Voltage Regulators
- Exciter Replacements
- DC Voltage Regulators
- Troubleshooting Schools
- Custom Designs
- Engineering Assistance
- Made in the USA
- Onsite Assistance



Proud Member
EGSA

(830) 895-4700 / POWER-TRONICS.COM

Microgrids with Propane-Fueled Backup Systems Deliver Reliable, Resilient Power

By Gordon Feller

With the increased value of distributed capacity in various energy markets, there is a growing demand for generators in microgrids, which are local energy systems that can be disconnected from the electric grid. Propane-powered generators will continue to be an important part of the solution and a focus of ongoing policy discussions.

Whenever extreme weather events pound the U.S. (including hurricanes and fires), utility safety shutdown programs ramp up. These safety-driven power shutoffs are pushing commercial and industrial energy consumers to seek solutions that not only meet corporate sustainability objectives, but also provide a greater measure of resiliency.

The U.S. Department of Energy's Energy Information Administration published an important piece of research in 2020, which carries this headline: "More than 60% of energy used for electricity generation is lost in conversion." One primary reason for the shift to cleaner fuels for utility purposes is to gain important energy efficiencies. According to the study, "in 2019, of the 11.9 quads of natural gas consumed for electricity generation, natural gas plants converted 45% (5.4 quads) into net generation of electricity. By contrast, of the 10.2 quads of coal consumption, coal plants converted 32% (3.3 quads) into net generation."

Benefits of Propane Over Natural Gas

Natural gas and propane are more energy efficient than coal, and cleaner. Dr. Christopher Baird, assistant

professor of physics at West Texas A&M University, published an article several years ago answering a simple question: Why is propane stored in household tanks but natural gas is not? The reason, he wrote, is that propane has a much higher boiling point (-44F at atmospheric pressure) than natural gas, or methane, (-260F at atmospheric pressure). That means a much lower pressure is required to keep propane in a liquid state at room temperature (70F) than is required to keep methane in a liquid state (about 123 psi versus 4,641 psi, respectively). Therefore, a common household metal tank can withstand the pressure required for propane, but not for methane.

Propane storage offers at least three advantages for power companies. They are:

- In winter storms, such as Uri in 2021, propane can be stockpiled next to a power generation plant.
- Because propane can be stockpiled, purchasing it can be done when supplies are high and costs are lower—it's a hedge.
- "Peak shaving" with propane makes sense. Stored propane is effectively a battery that can be turned on when the price of other

fuels peaks or the load on the grid peaks.

Microgrids Enhance Resiliency

As an increasingly viable option for the future, microgrids have gained in prominence as utility services have become more fragile in the face of climate change. Furthermore, some independent system operators and regional transmission organizations, such as the Electric Reliability Council of Texas (ERCOT), have shown that they can't be entirely expected to successfully manage their grids. In this kind of a world, it makes sense to decentralize the grid so that it can be run more efficiently, and more safely, using an array of energy sources. Microgrids are often a combination of solar, wind, and propane.

California is clearly the hotbed of innovation in this area. In recognition of that fact, the U.S. National Science Foundation awarded a \$39 million grant in October 2020 to better integrate renewables into the power grid. The funds are helping a team of engineers and computer scientists at the University of California, San Diego build a first-of-its-kind testbed to better understand how to integrate distributed energy resources, such as solar panels, wind turbines, smart

buildings, and electric vehicle batteries, into the power grid. The goal is to make the testbed available to outside research teams and industry by 2025.

One emerging strategy for improving the resilience of local electricity distribution systems is the deployment of microgrids. These represent a truly innovative approach that help to solve a number of the problems facing California's cities. In the event of a larger-scale emergency, microgrids can "island" their service area and continue providing electricity until the larger grid is restored, depending on their design.

Novel Microgrid Designs

Microgrids can be as small as a single building or set of critical building functions, or as large as an entire corporate or academic campus, downtown business district, or neighborhood. Microgrids can be powered with traditional combustion energy sources (such as generators), by renewable energy sources (solar, wind, or biogas), or a combination of these and storage.

There are already several noteworthy examples of microgrids in California. The Blue Lake Rancheria microgrid (Figure 1) allows a small, isolated community to remain self-sufficient in the event of storm, seismic, or other grid impacts. Energize Fresno has deployed a "virtual" microgrid, enabling local businesses to save energy, generate clean energy locally, and create local economic opportunities. The Berkeley Energy Assurance Transformation (BEAT) microgrid project ensures that critical city operations are not disrupted by larger power system interruptions. And both the University of California, Irvine and University of California, San Diego have large-scale microgrids for research and reliability purposes.

Evaluating Microgrid Performance

However, even before the results from new federally funded initiatives



1. The Blue Lake Rancheria microgrid can operate islanded from the main utility grid. A solar array, battery storage, and a Siemens microgrid controller—the Spectrum Power Microgrid Management System—are integrated in the system. Courtesy: Siemens

are known, it's important to ask the question: How well are real-world systems working? Examining two of the more interesting cases from California provides an answer.

Liberty Utilities is a regulated utility with about 50,000 customers on the west side of Lake Tahoe. Last year, it was investigating mitigation options to harden a transmission line serving one of its customers. The company examined making upgrades to mitigate the risk of wildfire, such as installing covered conductors to its transmission lines that run through a mountainous area to a remote research station operated by the University of California, Berkeley. But after Liberty's team ran an analysis of cost and feasibility, they realized it would be better to de-energize the line during wildfire season and instead use a containerized solar/battery storage system developed by BoxPower, a privately owned company based in Grass Valley, California.

According to Amanda Chee, Liberty Utilities' program manager for Capital Administration and Planning, the company was "looking to make certain upgrades to target our transmission lines for wildfire season. In the process of developing the project for the line,

we realized that this could have been a very expensive project." It would have cost about \$3 million to harden the entire four-mile line, which has 90 poles and serves Berkeley's Sagehen Creek Field Station. BoxPower's solar/battery system with propane backup will allow the utility to de-energize the lines in summer, according to Chee.

Another example is worth citing here. In June of last year, BoxPower and Pacific Gas and Electric (PG&E) commissioned that utility's first remote microgrid (Figure 2). The central aim of this important project was to reduce wildfire risk for customers located in Mariposa County, one of California's high-fire-threat areas. The microgrid accomplished that goal.

Propane Backup Delivers Reliability

According to Angelo Campus, CEO and co-founder of BoxPower, a focus on achieving complete power reliability was essential while designing microgrids for PG&E and Liberty Utilities. "Pairing propane-fueled generators with solar power and battery storage ensures a constant energy supply for BoxPower customers. Integrating propane for backup power



2. BoxPower SolarContainer with container-mounted solar array in Briceburg, California. The SolarContainer also includes a 27.2-kW/68.4-kWh lithium ferro phosphate battery energy storage system. Courtesy: BoxPower

increases the reliability of the overall system. Propane fills the niche as an always-available power source that smooths out the intermittencies of solar and wind resources," he said.

It's becoming clearer with each passing year that, when combined with solar and battery systems, propane provides that essential backup power during extended periods of low solar production or higher than expected loads. Campus said, "It gives BoxPower and our clients the sense of security needed to deploy solar as a 24/7/365 off-grid power source."

Combining solar power, battery storage, and propane-fueled generators also offers a cost-effective approach to reaching 100% reliability. Campus and his team at BoxPower have come to the same conclusion as their customers: "The alternative option—significantly increasing solar and battery capacities to account for worst-case scenarios—leads to underutilized assets and non-viable project economics."

BoxPower is currently working to test and demonstrate hybrid microgrids fueled by 100% renewable propane, providing customers with a 100% re-

liable, fossil-free energy source. Campus said that combining solar, battery storage, and renewable propane will be an affordable, reliable, and decarbonized approach to permanent off-grid power. "I foresee renewable propane as the future of propane. Utilities such as PG&E and Liberty Utilities are prioritizing decarbonization. When they turn to BoxPower to design off-grid solar power and battery storage systems, we suggest propane as a cleaner burning alternative to diesel for backup generation," he said.

Implementing Microgrid Solutions

Black & Veatch is one of the leading microgrid innovators, and years ago it created a system for the firm's own global headquarters in the Kansas City metro region. According to Randal Kaufman, sales director for Black & Veatch's Transformative Technologies business, microgrids "offer energy resiliency and availability" and also, depending upon the microgrid, "predictable costs of operations."

Kaufman defined resiliency as the ability to overcome disruptions and

maintain operations. "Availability is very specific to the uptime," he said. "They kind of go hand in hand, but resiliency doesn't necessarily infer availability. Resiliency means there may be an outage but you could react to it quickly and resume operations with minimal interruption. Availability is truly the electrons are always there or they're not. It's really taking a page from the data center playbook. An overall metric for utility uptime is 99%, meaning 1% of the time the power is out on an annual basis."

Of course, "microgrid" is a broad, loose term, meaning different things to different people. Kaufman thinks that it should be "a blend of using onsite generation and storage resources along with the utility, so the combination is a higher resiliency and availability than just the utility alone. It just depends; some of them are island mode—operating without the utility—and some are not. Island mode may be for the economics of reducing the costs, especially when you get peak periods, like in California." When you add in energy storage and load-management software, and some onsite prime generation, it's possible to reduce demand charge from the utility, and reduce peak-period energy costs. ●

Gordon Feller (@GordonFeller on Twitter) is a leading advisor on energy futures and provides insights to top executives at many of the world's leading organizations. From his Silicon Valley base, he's worked during 40 years with large companies, associations, universities, governments, and international organizations, and he's published more than 400 articles.

Achieving Power System Balance

A small utility in Tennessee installed a complete automated power factor balancing system without complex SCADA

By Conrad Oakley, CEO of NovaTech Automation

For the power generation industry, maintaining power system balance as closely as possible to the ideal power factor (PF) of 1.000 using correction capacitors and other technology is critical. Power factor is a measure of how effectively electricity is used, with an equal 1.000 PF benefiting both the customer and utility, and a low or high PF indicating poor electrical power utilization. A low power factor can overload generation units making them work harder for the same amount of power. A high power factor can cause instability to equipment on the distribution network as the voltage rises beyond normal capabilities. In contrast, improving the PF can maximize current-carrying capacity, improve voltage to equipment, reduce power losses, and lower electric bills.

The challenge for small municipal utilities and co-ops required to maintain proper power system balance is that they are more susceptible to large industrial loads and typically do not have complex SCADA systems to automate the process. In addition, smaller utilities may not have enough operators to manually monitor and effectively control the PF on a 24/7 basis.

Fortunately, cost-effective, self-contained, automation platforms can utilize programming logic schemes to maintain power system balance, minimizing the need for manual oversight and control.

Today, automation platforms can maintain system balance with PF at virtually 1.000 with accuracy to 3 decimal places. The control system cal-

culates whether the power system is out of tolerance, and if so, initiates a correction using the capacitor banks to keep the power factor at 1.000.

**Today, automation
platforms can maintain
system balance with PF
at virtually 1.000 with
accuracy to 3
decimal places.**

Automating System Balance

In a recent example, a small municipal power utility in Smithville, Tennessee required an automatic capacitor control logic scheme for their distribution network.

The municipal utility has a small distribution network and is contracted with a major Transmission Network Operator, under penalty of fine, to keep the PF of the power system as close to 1.000 as possible. However, the system includes a rather large industrial customer, so the utility needed a better way to manage their PF.

The utility has two substations with interconnecting feeders through their distribution network with the feeder circuit breaker on either end acting as the open or closed point. The capac-

itors are positioned outside the substation fence at various locations on those interconnected feeders.

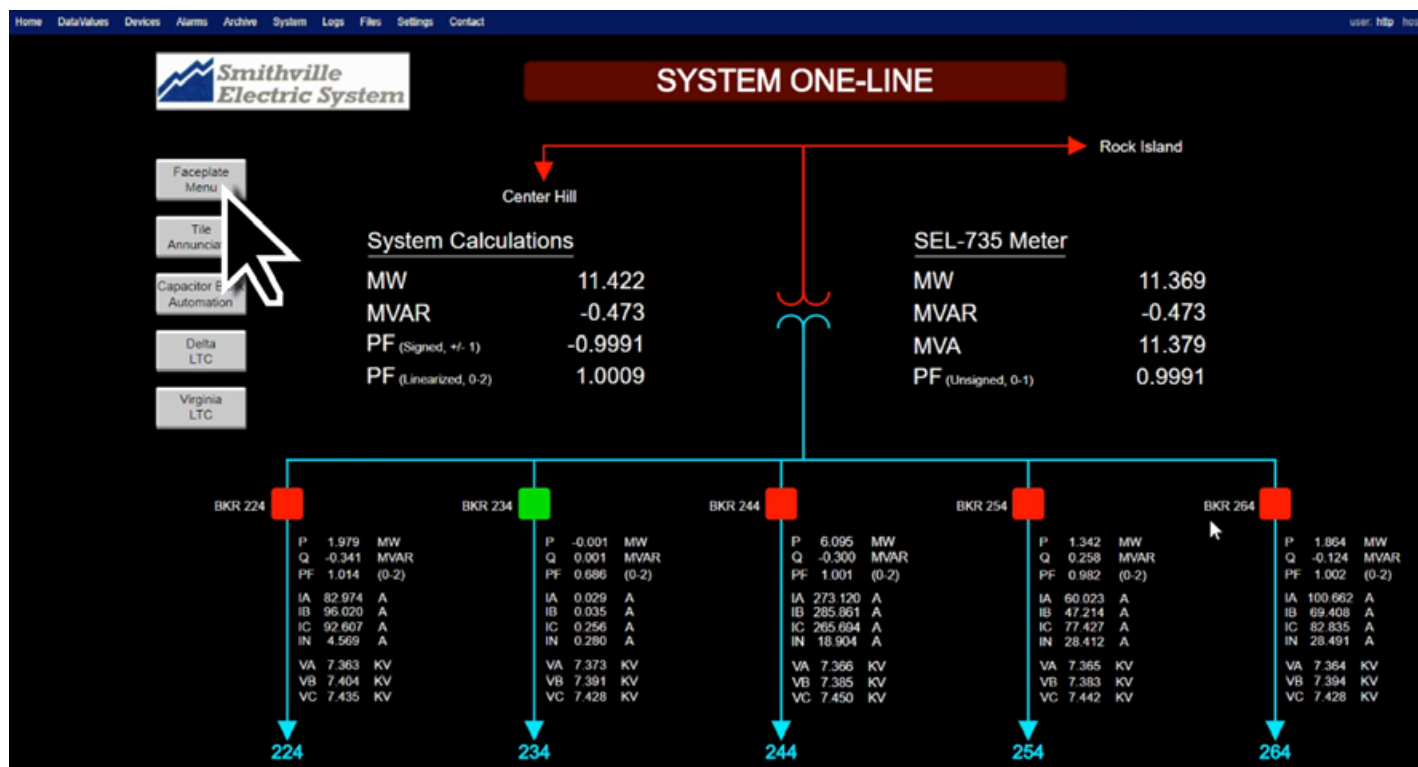
As a solution, the utility chose to implement a complete integrated power balancing system including capacitors, a capacitor bank controller, circuit breakers, and a controlling RTU.

All monitoring, control, visualization, and security of the integrated utility power balancing system is provided by a substation automation platform. The platform is a communication and automation processor that can be integrated with practically any equipment, usually microprocessor-based relays, meters, and other IEDs as well. It can connect to SCADA system or itself be a basic SCADA system.

The system uses open-source web technologies and pre-configured template pages. This simplifies the building of interactive SCADA and local HMI screens to view data from connected IEDs and RTUs using standard web browsers. Engineers can open multiple browsers to have graphical interfaces for the different substations and key remote monitoring features on different tabs, which eases network monitoring. Multiple users can be logged in simultaneously.

With the substation automation platform, the utility did not need a dispatcher for PF balancing, only a supervisor to oversee the facility.

The platform's System Balance scheme helps to ensure that each substation maintains a 1.000 power factor. The scheme will initialize values and then load all previous



Overview screen for power factor monitoring and control system

retentive values or default values if there are no retentive values. With the scheme, an overall leading power system state will turn off one or more capacitors, and an overall lagging power system state will turn on one or more capacitors, providing alerts and control.

To ensure that individual feeders are in balance and within tolerance, a second logic scheme has been proposed for Individual Feeder Balance that will run every five minutes after completion of the primary scheme. This is needed due to the configuration of the utility's distribution network assets. Although total substation power factor can be balanced, it is possible to have two feeders out of balance in the condition of one lagging and one leading. The second scheme looks at individual feeder power factor tolerance and makes corrections as needed.

Together, the primary and secondary balancing schemes provide integrat-

ed Volt-VAR regulation and optimization. The schemes automatically switch capacitor banks in and out to maintain power factor very close to balance, summing PF on each feeder and comparing it with the metered value reported to the power provider. The automation includes features to reduce wear and maintenance such as never switching the same capacitor bank twice in a row.

The system maintains the ability to manually control all capacitor banks and provides web-based HMI for monitoring and control of breakers and IEDs in substations.

Automated power system balancing comes in handy for smaller utilities because they do not need to monitor as closely. With installation comes more automatic control that can be scaled up to the number of required substations.

Overall, the primary and second-

ary balancing schemes have been extremely beneficial for the small municipal utility in Tennessee. The schemes have reduced the labor required for the utility to look after the distribution grid, and it has maintained almost full power factor compliance with the Transmission Network Operator.

For more information on SCADA solutions from NovaTech Automation, visit www.novatechautomation.com or call (913) 451-1880. ●



EGSA

2023 SPRING CONFERENCE

Caesars Palace | Las Vegas, NV | March 12-14

NETWORK ► LEARN ► ADVANCE

SCHEDULE AT-A-GLANCE

Sunday, March 12

- Committee Meetings
- Welcome Reception in the Exhibit Hall

Monday, March 13

- Breakfast
- Exhibition Open
- General Session
- Educational Sessions
- Welcome Lunch
- Educational Sessions
- Banquet Dinner

Tuesday, March 14

- Breakfast
- Exhibition Open
- General Session
- POWER Talks
- Educational Sessions
- Networking Activities
- Closing Reception

General Sessions:

- Keynote Speaker Kevin O'Leary
- Lessons Learned: The State of Texas

Educational Sessions:

- Generator Reliability
- Demand Response: A new business opportunity
- Optimizing Maintenance Intervals
- The "Training Function": How to Increase Your Technicians Performance
- How Top Leaders Set the Tone for Recruitment & Retention
- Combined Engine Exhaust Solutions in CHP
- Continuous Fuel Quality Monitor
- Solving the #1 Genset Problem
- The Nuts and Bolts of Social Media for your Business



egsa.org/Events/Conference-Home



EGSA

2023 SPRING CONFERENCE

Caesars Palace | Las Vegas, NV | March 12-14

KEYNOTE SPEAKER: Lessons from the Shark

Kevin O'Leary

*Member of "Shark Tank," Canadian Businessman,
Investor, Writer, and Television Personality*



One of North America's most successful entrepreneurs, O'Leary will share his secrets to his remarkable business achievements with us during his keynote address. Best known as guest judge "Mr. Wonderful" on the popular investment pitch show Shark Tank. O'Leary will take you on a behind-the-scenes look at his two hit shows, ABC's Shark Tank and CBC's Dragons' Den. He will share entertaining and insightful outtakes from his TV shows, including videos you cannot see anywhere else, along with a current economic overview and how it relates to your industry. Finally, he will bring unique business information to your audience and provide insights into how your industry is performing, where the innovation is coming from, and more.

egsa.org/Events/Conference-Home

SAVE THE DATE



2023 FALL CONFERENCE

Hyatt Regency Hill Country Resort | San Antonio, TX | October 1-3

Kelly Generator & Equipment (KGE)



Kelly Generator & Equipment (KGE) is the Mid-Atlantic distributor for Generac Power Systems. KGE is recognized for our ability to supply products that are packaged to individual applications and the exact requirements of our customers. We also service all makes and models.

As a preferred leader in the power generation industry, KGE provides customers with service above and beyond their expectations. We have established a premium level of service recognized by our peers and our long list of repeat clients.

Purpose

Our vision is to be the most respected vendor for comprehensive power solutions for our marketing area. Our employees are treated fairly and respectfully and are excited to be on our team. Our customers consider our service and commitment to be unparalleled.

Our values are to Operate with Integrity, Operate Safely, Operate Unselfishly, Achieve Excellence through Teamwork, and Have Fun.

KGE provides our customers with quick and professional solutions to

their electrical power needs. KGE operates on three solid principles: ensure optimum quality in every product sold; professional, honest straight-forward relationships with our customers; and superior service for the life of our products.

In addition to diesel and natural gas generators, KGE is exploring the expanded use of solar and battery technology in conjunction and integration with internal combustion engines.

KGE creates and protects value across our varied customer base by insuring they have electric power to their facilities under all circumstances to protect life and property.

Impact

Our service technicians are equipped with the tools and test equipment to give you the highest standard of service and maintenance. KGE provides premium service by ensuring our tech-



KGE is excited to boast the successful completion of a project that is a result of the Kelly Complete program. We worked with the owner of a local food manufacturing facility to design and implement a backup power system consisting of a 625kW and a 750kW natural gas demand response system. The owner saw no upfront cost and will experience long-term savings through the service life of the equipment.



Kelly Generator & Equipment Inc. (KGE) partnered with Freestate Electrical of Baltimore to implement backup power for the premier destination for the biggest artists and events in Baltimore. The end user worked with the design consultant to establish that the venue would require a 750kW diesel unit in order to backup the facility should they lose utility power. Commissioning went smooth and the project was complete, exceeding everyone's expectation on service provided by the construction team as a whole. We are excited to attend some upcoming events!

nicians are fully trained to operate the latest diagnostic and service equipment. We are fully stocked with the proper tools, parts, and equipment to repair and test engines and generators of all sizes.

KGE rents electrical generators as small as 20kW up to 2MW with paralleling capabilities as large as 9MW. We also offer load banks of all sizes, resistive and reactive. Our rental equipment is built to stand up to the rigors of a tough demanding client base with products that will perform reliably when power is critical.

KGE offers a variety of rental agreements from short term to long term for new construction sites, seasonal programs, reconstruction, natural disasters, and the oil and gas industry.

KellyComplete is a new business initiative providing a one stop electricity solution for municipalities and

businesses to be green, resilient and save money. KellyComplete sources green energy, manages distribution and transmission of green energy, and monitors your power supply. You pay a fixed price that is comparable and possibly lower than your current bill with no up-front cost or capital.

Growth

In 1992, KGE started with a Generac territory that included Maryland, Northern Virginia, Delaware and Washington, D.C., selling generators and providing parts and service. In 1999, KGE invested \$1 million to acquire a generator rental fleet to launch its own full blown rental division.

In 2011, Generac awarded KGE additional territory to include Western Pennsylvania and Northern West Virginia markets where we opened a branch office outside of Pittsburgh.



gLeaf Medical needed a backup power solution to ensure their growing business was always up and running. Kelly Generator designed this two-megawatt standby emergency power system, using the Generac Geminis. Each enclosure contains two 500kW generators in parallel.

In 2022, KGE celebrated its 30th Anniversary and began designing another building which will be situated on our 3.5-acre back lot at our corporate headquarters in Owings, MD. The new structure will boast additional office space, a warehouse, and an outdoor lot to support our rapidly growing business.

Today, KGE has millions in rental assets that are deployed all over the U.S. and worldwide with a sales/service territory that stretches from the Great Lakes to the Atlantic Ocean.

We have technicians stationed all over our sales territory to service all brands of generators in addition to those we sell. We are proud to be the first company to boast two EGSA TOYA winners. ●

Meet the 2022 Technician of the Year Award (TOYA) Winner, Rustin Riss

The Electrical Generating Systems Association (EGSA) is proud to announce that Rustin Riss of Kelly Generator & Equipment was named the 2022 Technician of the Year (TOYA) winner. EGSA's TOYA award is our association's way of honoring and showcasing the on-site power industry's first responders and unsung heroes, who determinedly give their time and attention to the power generation systems and packaged engineered solutions around the globe.

Rustin was raised in Alaska, graduated from Soldotna High School, studied Aviation Maintenance and has been a Master and Lead Startup Technician with Kelly since 2009. He has shown a deep commitment to his company and customers. He understands the devastating factors that come with losing power, especially when there is no working back-up generator. One example of this was when he willingly put himself in harm's way when there was a 911 tower generator down. Rustin was dropped off by helicopter, which landed in 10ft. of snow, on the top of the mountain to gain access to the genset. Knowing the importance of this unit, he didn't hesitate to volunteer for this mission. Needless to say, he did not disappoint and got the unit up and running. In addition to being a dedicated technician, Rustin is also the top trainer at Kelly. Not only does he train technicians and new employees in the field but he has the capability to train anybody looking to advance their certification up to the Commercial level.

Generator technicians are responsible for servicing, maintaining, selling parts and providing customer assurance. In

our industry, technical knowledge is respected and expected, but the ability to think and act under pressure is what separates elite technicians from the shade tree mechanic. These pieces of equipment are sensitive and complex systems that require expertise to keep the power on! The systems a technician works on can sometimes be the difference between a life or death situation.

Congratulations to our 2022 TOYA recipient, Rustin Riss, your dedication and hard work in service to your customers represents the best in our industry. ●



Rustin Riss



Technician of the Year Award Recipients

- 2022 — RUSTIN RISS - Kelly Generator & Equipment, Inc.
- 2021 — DONALD STERNER - Penn Power Group
- 2020 — MATTHEW ERICKSON - PowerSecure
- 2019 — ANDREW VAN NOY - Loftin Equipment Company
- 2018 — ROB PLANE - LionHeart Critical Power Specialists
- 2017 — RICK ROTHFUSS - Prime Power Services
- 2016 — DAVID YURO - Modern Power Systems
- 2015 — MARK MICHAELSON - Collicutt Energy Services Inc.
- 2014 — TODD VAUGHAN - Kelly Generator & Equipment, Inc.

EGSA Certified Technicians

Advancing Professionalism in On-Site Power

As part of its commitment to advancing professionalism within the On-Site Power industry, EGSA has created the Electrical Generator Systems Technician Certification Program. Certification of personnel has become the hallmark of many industries in the United States today for one simple reason: It helps advance the profession by identifying consistent standards through which proficiency can be determined.

EGSA Technician Certification demonstrates a commitment to that ideal. Through rigorous testing, the program will identify those technicians who not only have a broad knowledge of electricity, mechanical and electrical components and the interaction between them, but are proficient in the installation, service, maintenance, and repair of On-Site Power generation systems.

Please visit egsa.org/Certification to learn more about EGSA Technician Certification. ●





POWER YOUR FUTURE

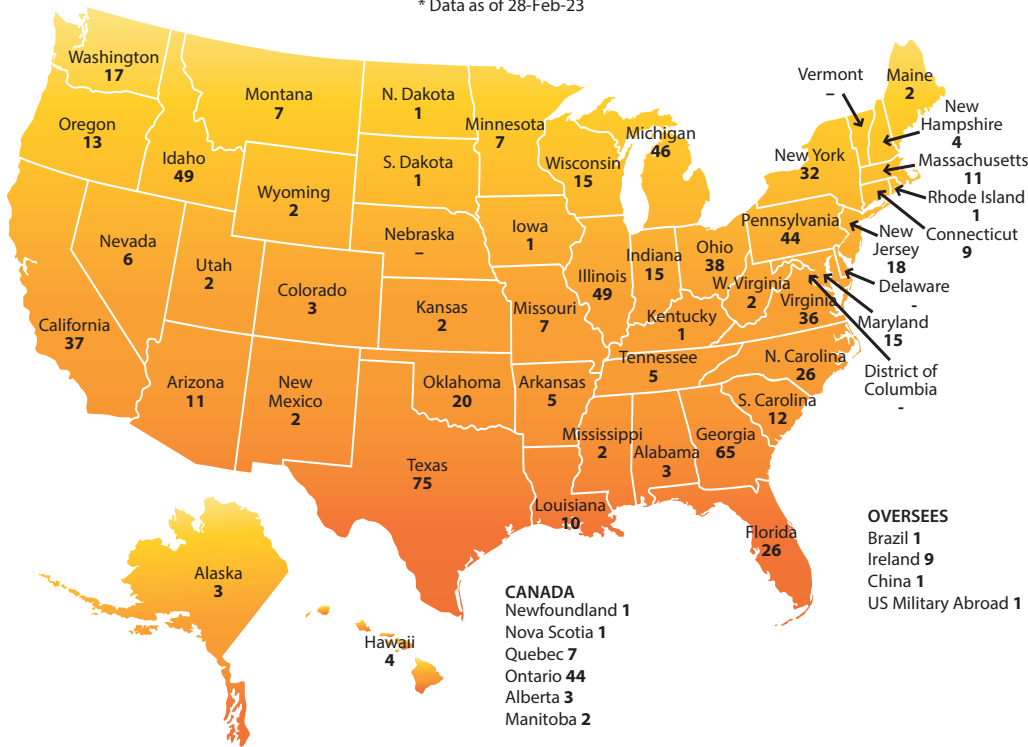
- 9 kW - 2 MW UL2200 Listed Diesel Generators
- 15 kW - 1 MW UL2200 Listed Natural Gas Generators
- Mobile Generators



www.aksausa.com

832* EGSA Certified Technicians

* Data as of 28-Feb-23



CANADA
 Newfoundland 1
 Nova Scotia 1
 Quebec 7
 Ontario 44
 Alberta 3
 Manitoba 2

OVERSEES
 Brazil 1
 Ireland 9
 China 1
 US Military Abroad 1

EGSA Certification Levels

Apprentice

The Apprentice level exam provides technical college students, recent graduates, military personnel and other 1st or 2nd-year technicians with proof that the basic skill set has been met (certification valid for 3 years).

Journeyman

A passing grade on our Journeyman exam assures an employer that this technician meets or exceeds 3 years of practical field experience. This exam tests in 61 individual areas of expertise (certification valid for 5 years).





UNIVERSAL LOAD BANKS






Tired of paying top dollar and waiting months for your load banks? Universal Load Banks is the only major manufacturer who offers many popular models IN STOCK!

- Load Banks rated from 50 KW to 5000 KW
- Standard Digital Load Controls
- State-of-the-art Designs
- Many Models IN STOCK

UNIVERSAL LOAD BANKS • 28200 Lakeview Drive • Wixom, MI 48393 USA
 Phone: 248-571-4125 • Email: sales@universalloadbanks.com • www.universalloadbanks.com

WE ARE YOUR EVERLASTING COMPANY



*Power on your potential with our
Rental & UL Listed Power Solutions*



+1 224 404 1274

www.teksanus.com
info@teksanus.com

Support the EGSA TOYA in 2023!

Take a look at Our Technician of the Year Award Program and Nominate a Worthy Candidate!

Get ready to shamelessly promote your EGSA-certified colleague by nominating him or her for the 2023 EGSA TOYA!

Every one, at every level, wants to be recognized for doing a great job! The TOYA is **THE** capstone to any technician's career, inciting further personal and professional growth. Can you imagine the competitive advantage of having a TOYA winner on YOUR team?



Registration Now Open!

Application Period Ends:
July 31, 2023

Review of Applications
Takes Place:
August 1 – 26, 2023

Winner will be Notified:
During final quarter of 2023



Electrical Generating Systems
Association (EGSA)
(561) 750-5575
email@EGSA.org
EGSA.org



Application for Membership

Under the leadership of its Board of Directors and operating through its various committees and staff, EGSA strives to educate, provide networking opportunities and share relevant knowledge and trends with industry professionals including manufacturers, distributor/dealers, engineers, manufacturer representatives, contractor/integrators and others serving On-Site Power consumers.

EGSA MEMBER CLASSIFICATION & DUES SCHEDULE (Please complete form on next page)					
FULL MEMBERSHIP			Annual Dues	Initiation	TOTAL DUE
These Full Memberships categories are for corporations and their memberships cover all employees of the company.					
MF Manufacturer Membership Any individual, sole proprietor, partnership or corporation seeking membership must apply for a Full Membership as a manufacturer if they meet one or more of the following criteria: 1. They manufacture prime movers for power generation. 2. They manufacture generators or other power conversion devices producing electricity. 3. They manufacture switchgear or electrical control devices. 4. They manufacture or assemble generator sets, UPS systems, solar power, hydropower, geothermal, or any other power production or conversion system including related components or accessories for national or regional distribution. 5. They are a wholly owned subsidiary of a firm that qualifies under rules one through four.			\$1,354	\$257	\$1,611
DD Distributor/Dealer Membership Any individual, sole proprietor, partnership or corporation actively engaged as a distributor or dealer for products listed under Manufacturer Membership may apply for Full Membership as a Distributor/Dealer. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.			\$508	\$128	\$636
CI Contractor/Integrator Membership Any individual, sole proprietor, partnership or corporation actively engaged as a Contractor or Equipment Integrator of products listed under Manufacturer Membership, not bound by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product. These firms typically purchase products from a Distributor/Dealer, Manufacturer or Retailer, adding value through installation, product knowledge, relationships, unique services, etc., and then re-sell the resulting product to an end-user.					
MR Manufacturer’s Representative Membership Any individual, sole proprietor, partnership or corporation actively engaged in the representation of products listed under Manufacturer Membership may apply for Full Membership as a Manufacturer’s Representative. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.					
EM Energy Management Company Membership Any individual, sole proprietor, partnership or corporation engaged in energy management, including Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for Full Membership as an Energy Management Company.			\$347	\$128	\$475
ASSOCIATE MEMBERSHIP			Annual Dues	Initiation	TOTAL DUE
EGSA has two Associate Member types, Associate Regular and Associate Full . Companies have the choice of joining as an Associate Regular Member or Associate Full Member. Individuals can join as an Associate Regular Member only.					
Associate Regular Membership <i>(Select Appropriate Category Below)</i>			\$347	\$128	\$475
Associate Full Membership Any individual, sole proprietor, academic institution, student, partnership or corporation meeting the requirements of Associate Regular Membership may apply for Full Membership at their option to enjoy the privileges of Full Membership, including the rights to vote and to serve on EGSA’s Board of Directors . Initiation fees and annual dues will be assessed at the existing non-manufacturer Full Member rates. <i>(Select Appropriate Category Below)</i>			\$508	\$128	\$636
Associate Membership Categories					
Associate Regular Membership Categories	Associate Full Membership Categories	AA Trade Publication Membership Any trade publication dealing with the electrical generating systems industry or its suppliers may apply for Associate Membership–Trade Publications.			
		AB Trade Association Membership Any trade association made up of individual or company members sharing a common interest in the electrical generating systems industry may apply for Associate Membership.			
		AC Engineer Membership Any consulting or specifying engineer may apply for Associate Membership–Engineer. Membership may either be held in the employer’s name or individual’s name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.			
		AD End-User Membership Any individual employee of a company who owns or operates electrical generating equipment and/or related switchgear or components, whose responsibility to his employer includes planning, design, installation, supervision, or service of such equipment may apply for Associate Membership–User. Membership may either be held in the employer’s name or individual’s name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.			
		AE Service Membership Any individual, organization or academic institution that offers services such as research, testing or repair to the electrical generating systems industry may apply for Associate Membership–Services. Membership may either be held in the individual’s name or the organization’s name under this classification. Individual companies whose employer or parent organization qualifies as a Full Member, as described in the Full Membership section, do not qualify for this category.			
		AG Educational Institution Membership Any postsecondary vocational-technical school or college offering on-site power generation-related instruction may apply for Associate Membership–Education Institution.			
	AI Individual Membership Any individual who was previously employed in the on-site power generation industry but is no longer actively employed in the industry.	\$142	N/A	\$142	
	AM Military Membership Any individual who is currently enlisted, or who has been discharged, or has retired from the US or Canadian Military may apply for membership within this category. Proof of military engagement is required by either current Military ID card or honorable discharge documents.	\$84	N/A	\$84	
	AR Retiree Membership Any individual who retires from a member company may apply for Associate Membership–Retired. This classification does not apply to any individual who is employed more than 20 hours per week.	Complimentary		\$0	
	AF Student Membership Any individual currently enrolled at an academic institution may apply for Associate Membership–Student.	Complimentary		\$0	

1. Contact Information

Company _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

Phone _____ FAX _____

Official Representative _____ Title _____

Representative's E-Mail _____ Company's Web Address _____

How did you hear about EGSA? ☐ Web site ☐ Powerline magazine ☐ Colleague ☐ POWER-GEN ☐ Other _____

Why are you joining EGSA? ☐ Certification Program ☐ CEU Program ☐ Power Schools ☐ Buying Guide Listing ☐ Other _____

2. Member Classification

Please use the worksheet on page one of this application to determine your membership type.

Full Memberships

- ☐ Manufacturer (MF)
- ☐ Distributor/Dealer (DD)
- ☐ Contractor/Integrator (CI)
- ☐ Manufacturer's Representative (MR)
- ☐ Energy Management Company (EM)

Associate Memberships

- ☐ Regular Associate Membership →
- ☐ Full Associate Membership →

(Select Appropriate Category)

- ☐ Trade Publication (AA)
- ☐ Trade Association (AB)
- ☐ Engineer (AC)
- ☐ End User (AD)

- ☐ Service (AE)
- ☐ Educational Institution (AG)
- ☐ Individual (AI)
- ☐ Military (AM)
- ☐ Retiree (AR)
- ☐ Student (AF)

3. Membership Dues

(Please fill in the appropriate TOTAL amount from the dues schedule on page one.)

Membership Dues \$ _____

Membership Plaque (optional)** \$102.00

On-Site Power Generation: A Comprehensive Guide to On-Site Power (optional)** \$260.00

Florida Residents: Add 7% Sales Tax to ** items \$ _____

** Shipping and handling is included for Continental US & Canadian Residents.

All others should call EGSA Headquarters for \$ _____ shipping charges for **items.

TOTAL \$ _____

4. Payment Method

(Payable in US\$ drawn on U.S. bank, or U.S. Money Order)

☐ Check # _____ Amount Due \$ _____

Please contact Marc Charon via email (m.charon@egsa.org) if you wish to pay by credit card.

5. Products/Services

Please describe the nature of your business (50 words or less, NOT ALL CAPS). If you are a Manufacturer's Representative or Distributor/Dealer, please indicate which manufacturers you represent and/or distribute for; if you are a student, please provide the name and location of your school, your major and your anticipated graduation date:

Do you buy AND sell equipment? ☐ Yes ☐ No

Do you manufacture packaged equipment? ☐ Yes ☐ No

6. Sponsor(s):

A "Sponsor" is an EGSA Member who interested you in filling out this application. It is not mandatory that you have a sponsor for the Board to act favorably on this application; however, if a Member recommended that you consider membership, we request that individual's name and company name for our records.

Sponsor Name _____ Company Name _____

Available Codes:

- | | | | | |
|-----------------------------------|---|---|---|--------------------------------------|
| 01 ---Batteries/Battery Chargers | 07 ---Engine Starters/Starting Aids | 12 ---Governors | 18 ---Relays, Protective or Synchronizing | 22 ---Trailers, Generator Set |
| 02 ---Control/Annunciator Systems | 08 ---Filters, Lube Oil, Fuel or Air | 13 ---Heat Recovery Systems | 19 ---Silencers/Exhaust Systems/Noise Abatement | 23 ---Transformers |
| 29 ---Education | 28 ---Fuel Cells | 14 ---Instruments and controls, including meters, gauges, relays, contactors, or switches | 20 ---Solenoids | 24 ---Uninterruptible Power Supplies |
| 30 ---Emission Control Equipment | 03 ---Fuel Tanks and Fuel Storage Systems | 15 ---Load Banks | 21 ---Switchgear and Transfer Switches (Automatic or Manual), Bypass Isolation Switches, and/or Switchgear Panels | 25 ---Vibration Isolators |
| 04 ---Enclosures, Generator Set | 09 ---Generator Laminations | 16 ---Motor Generator Sets | | 26 ---Voltage Regulators |
| 05 ---Engines, Diesel or Gas | 10 ---Generator Sets | 17 ---Radiator/Heat Exchangers | | 27 ---Wiring Devices or Receptacles |
| 06 ---Engines, Gas Turbine | 11 ---Generators/Alternators | | | |

Enter codes here: (Limit 10 codes per category)


Products sold: _____

Products rented: _____

Products serviced: _____

7. Official Representative's Authorization

Signature _____ Date _____



**ARE YOU
CONFIDENT
YOUR TECHNICIANS
HAVE THE
KNOWLEDGE
TO GET THROUGH
THE NEXT
ELECTRICAL
EMERGENCY ?**

MAKE SURE THEY ARE

EGSA CERTIFIED!

What is EGSA Technician Certification?

Generator technicians vary in skill level from employer to employer and market to market. Finding a way to identify a proficient and knowledgeable technician, or even identifying a technician's skill level can be challenging.

The EGSA Technician Certification Program has expanded to meet these challenges.

We offer two levels of certification!

Program Updates

- We have made changes to both the Apprentice and Journeyman programs to ensure technicians are being tested on the most current advancements and technologies our industry.
- The Journeyman test has been split into four modules that will be taken separately. This allows technicians additional time to prepare for each portion of the test.
- The process for recertifying as a Journeyman technician has also been revised. Technicians may retake the test to recertify for an additional 5 years –OR– submit education/recertification credits to extend initial certification 1-2 additional years.

APPRENTICE LEVEL

(certification valid for 3 years)

The Apprentice level exam provides technical college students, recent graduates, military personnel and other 1st or 2nd-year technicians with proof that the basic skill set has been met.

JOURNEYMAN LEVEL

(Initial certification valid for 5 years. Option to extend up to 2 additional years with education/recertification credits)

Our Journeyman exam assures an employer that this technician meets or exceeds 3 years of practical field experience. It tests in 61 individual areas of expertise and has been upgraded to reflect current technologies.



Please visit EGSA.org/Certification for additional details on the program.



Our **On-Site Power Generation Reference Book** is

a great resource to prepare for the certification exam. We also offer bundle packages that include study guides.

BASIC SCHOOL

Perfect for staff new to the power generation industry or someone who needs an introduction to basic concepts and technologies, this school is appropriate for students seeking a foundation in generator technology. Whether you are in sales, marketing, management, application engineers, engine technicians, or administrative personnel, you will find great value in this course! The Basic School is a general, yet technical, overview of On-Site Power.

2023 IN-PERSON BASIC SCHOOL SCHEDULE

Orlando, FL – February 20-23
San Diego, CA – October 9-12

2023 VIRTUAL BASIC SCHOOL SCHEDULE

Virtual – April 10-13
Virtual – December 11-14

Basic Course Modules

- Introduction to EGSA
- Basic Electricity
- Prime Movers
- Introduction to Generators/Alternators
- Starting Systems
- Introduction to Automatic Voltage Regulators
- Introduction to Governors/Speed & Load Controls
- Introduction to Transfer Switches
- Load Bank Fundamentals
- Generator Set Instrumentation
- Codes and Standards
- Generator Set Systems: Putting the Pieces Together
- Understanding Bid & Specification Documents

ADVANCED SCHOOL

Our Advanced School is designed for those who have a good understanding of the basic mechanical and electrical systems found in an on-site generator site. A minimum of three years of experience in the industry is recommended. It will be particularly useful for those employed in engineering, project management, service positions, and business owners.

2023 IN-PERSON ADVANCED SCHOOL SCHEDULE

Chicago, IL – May 22-25

2023 VIRTUAL ADVANCED SCHOOL SCHEDULE

Virtual – June 26-29

Advanced Course Modules

- Advanced Generators/Alternators
- Generator Set and Critical Power System Controls
- Generator and System Protection
- Advanced Automatic Voltage Regulators (AVRs)
- Advanced Governors/Speed and Load Controls
- Advanced Transfer Switches
- Multiple Generator
- Paralleling Switchgear
- Engine Emissions
- Noise Control
- Communications
- Advanced Generator Systems: Sizing to Service

LOAD BANK SCHOOL

EGSA's Load Bank School & Certification is a 3-day course which includes classroom and hands-on training sessions. This school is designed specifically for experienced technicians looking to increase their knowledge and abilities. The school concludes with EGSA's Load Bank Certification test.

2023 LOAD BANK SCHOOLS/CERTIFICATION

Atlanta, GA – April 10-13
Houston, TX – July 18-20
Atlanta, GA – September 5-7

Load Bank School Modules

- Safety protocols
- Deciphering nameplate ratings of generators
- Different types of load tests
- Connections
- Testing requirements of the local authority having jurisdiction (AHJ)
- Applying the appropriate loads for the test required
- Gathering/calculating/documenting load test parameters and results
- Site and environmental conditions
- Potential problems/corrective actions.

EGSA George Rowley Schools of On-Site Power Generation

Virtual Offerings



Live Virtual Rowley School

These live virtual schools are taught by the same knowledgeable and professional instructors who have been teaching at the in-person schools across the country. One of the best parts of physically going to the in-person school is the ability to speak directly with the instructors and ask questions. Rest assured, we have made our live virtual schools as interactive as possible and instructors are still able to answer your questions on the spot.

Virtual Basic Schools

April 10-13 and Dec 11-14

Virtual Advanced School

June 26-29

Pre-Recorded Sessions

All live virtual sessions are recorded and access to the recordings are provided when you register for the live virtual school. These recorded sessions will also be available on EGSA.org as individual sessions or a package of the complete school. As we continue to complete live virtual schools, our library of recorded content will grow and be made available.



Check out EGSA.org for more information and available courses.



ON-SITE POWER GENERATION
A Comprehensive
Guide to On-Site Power

On-Site **POWER** Generation

**A Comprehensive Guide
to On-Site Power**

FIFTH EDITION

**Order Your
Copy Today!**

*Published by the Electrical
Generating Systems Association*

**Electronic
Version Available
on All Kindle Apps!**

If you are in the business of On-Site Power,
you should own a copy!
This is THE On-Site Power Generation book.
It is all there. It's all in one place.

- Lightweight, Soft Cover Reference Book
- More Than 700 Pages and 47 Chapters
Covering All Aspects of On-Site Power Generation

Call (561) 750-5575 or visit EGSA.org to order.

