

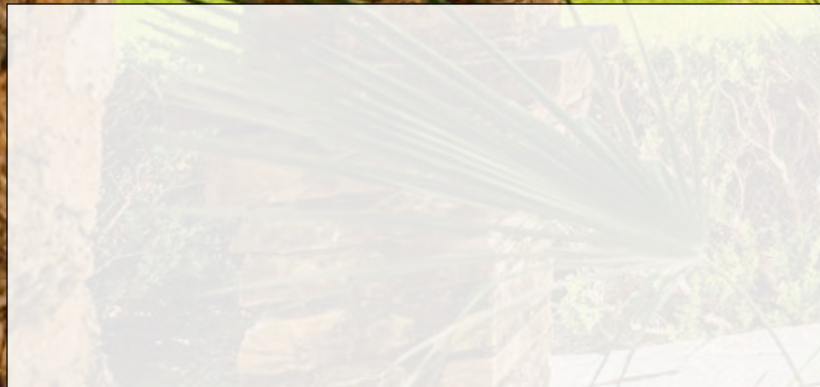
POWERLINE

The Voice of the On-Site Power Generating Industry

Q3 23

A Preview of the EGSA Fall Conference in San Antonio

A Case Study of the RivGen Power System in Igiugig, Alaska



Electrical Generating
Systems Association
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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.



REMAINING 2023 SCHEDULE

BASIC SCHOOL

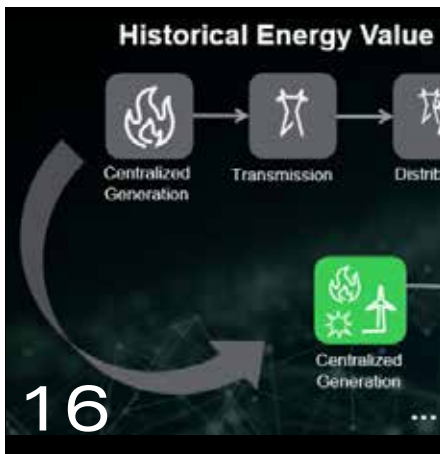
San Diego, CA — October 9-12

Virtual — December 11-14

POWERLINE

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CALENDAR OF EVENTS

SEPTEMBER 2023

Sep 5-7
Load Bank School & Certification
 Atlanta, GA

Sep 18
Distributor/Dealer Committee Meeting

OCTOBER 2023

Oct 1-3
EGSA Fall Conference
 San Antonio, TX

Oct 9-12
EGSA Basic School of On-Site Power
 San Diego, CA

NOVEMBER 2023

No Events on the Schedule

DECEMBER 2023

Dec 11-14
EGSA Basic School of On-Site Power
 (Virtual School)

JANUARY 2024

EGSA at PowerGen
 New Orleans, LA

- **Jan 22-24**
 EGSA Basic School of On-Site Power
- **Jan 23**
 EGSA Power Party

FEBRUARY 2024

Feb 20-22
Load Bank School & Certification
 Atlanta, GA

MARCH 2024

Mar 4-6
EGSA Basic School of On-Site Power
 (Virtual School)

APRIL 2024

Apr 7-9
EGSA Spring Conference
 Miami, FL

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Winds of Change

After what inevitably feels like too short of a summer in Minnesota, there is a certain briskness developing in the mornings now, indicating change is coming. Before long, there will be an autumn rite taking place, as folks prepare for transition from one season to another. Depending on Mother Nature's graciousness, the transition window can last from only a few days, to what I personally hope is many weeks. In this limited time, the transition can induce emotions ranging from excitement to anxiety, as it can feel like we never had enough time to fully enjoy the prior experience or are not yet prepared for what is to come.

Within EGSA, this time of year marks an important time of change also, and your staff and volunteers are busy with preparations and transitions of their own. We have begun the Board of Directors and Executive Committee selection processes and will welcome new volunteers to their terms in 2024. We have been busy integrating a new Association Management System (AMS) that will dramatically improve the way members interact with our systems in 2024 and beyond. This system will streamline the process for registrations, facilitate our growth and expansion, and will be critical in our effort to expand online educational opportunities. We continue efforts and actions designed to increase value to membership, restructuring our committees and educational offerings to meet the future needs of our industry, and evolutions in technology.

After we close the San Antonio conference together, the board will be meeting again for another strategic planning session. In those meetings, we measure the organization's progress in achieving our 2023 strategic priorities, and collaborate on the 2024-2027 EGSA vision, goals, and objectives. Looking back to when I first started on the board in 2017, it would have been impossible to predict all the ways in which the organization needed to adapt and evolve to winds of change, but I am very proud of the work done by those who served before me, with me, as well as to those who will follow.

Thank you for the opportunity to have served as your EGSA Chair for the last 2 years. I am grateful to have had the opportunity to serve our association alongside our tremendous staff and volunteers. I am thankful that so many of you continue to accept in volunteering for all areas of service, and to invest yourselves and experience with the collective. Enjoy the experience, for it is through your efforts that EGSA is always prepared for what is to come. ●



Justin McMahon

EGSA Chairman

Nidec/Leroy-Somer/Kato Engineering

With gratitude,
Justin McMahon
EGSA Chairman



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

EGSA's Hand-On Technician Training (H.O.T.T.) Sub-Committee

At EGSA we understand the pain point that so many of our members are experiencing when it comes to finding and training new technicians. We have begun a new Education Sub-Committee known as H.O.T.T. – Hands-On Technician Training, with a mission to invigorate the dwindling numbers of new generator technicians entering the industry. This sub-committee, headed by Jon Pinney of Buckeye Power Sales, is working towards developing a training program for entry-level technicians with a strong mechanical aptitude and an eagerness to dive into the complexities of power generation systems.

At its core, the H.O.T.T. sub-committee is sculpting a comprehensive program designed to instill fundamental skills in its participants. From engines to alternators, AC/DC circuitry to Ohm's Law, transfer switches to planned maintenance, this program promises to provide a soup-to-nuts understanding of generator systems. The training program would encompass all generators styles in our industry, such as 2-stroke and 4-stroke diesel engines, spark-ignited engines, air-cooled and liquid-cooled engines, and everything in between.

This endeavor draws inspiration from existing successful programs that some of our member companies have in place now. Their triumphs have demonstrated that the blueprint indeed works, enriching their service teams. EGSA is now poised to chart its own course in this domain, striving to create a program that can be disseminated across member companies' training centers or regional training facilities.

The educational journey for the technicians is designed to be primarily lab-based, underscoring the importance of practical experience. The theoretical aspects will be presented through online modules, paving the way for interactive classroom sessions for deeper engagement. Importantly, the theoretical portion is confined to no more than a quarter of the training day, ensuring that hands-on experience remains paramount.

One thing that will be different in our program compared to others is our product-neutral stance. Unlike traditional approaches tied to specific manufacturers, EGSA's Technician Training program hinges on task-specific training. For instance, instead of drilling into a single model, participants will be mastering tasks applicable to a broader range of equipment. While some tasks may be inherently manufacturer-specific, the focus is firmly on imparting versatile skills that can be applied across a spectrum of scenarios.

The sub-committee hopes to collaborate with equipment manufacturers. The hope is to draw manufacturers into the developmental process, leveraging their expertise to shape a robust curriculum. By tapping into the existing treasure troves of training materials, this initiative seeks to craft an educationally enriching experience. Manufacturers' involvement might even extend to providing equipment for the practical labs, thereby grounding the training in real-world settings.

To achieve its ambitious goals, the H.O.T.T. task force has mapped out a strategic roadmap. This involves compiling pertinent information, structuring a

logical sequence of instruction, and developing a well-paced curriculum. The culmination of these efforts will be reflected in online modules hosted on a Learning Management System (LMS). Moreover, guidelines for training facilities and equipment requirements will be established, accompanied by a catalog of hands-on tasks that participants must master. The creation of comprehensive workbooks will further solidify the practical aspect of the training.

For more information, or to join the sub-committee, reach out to Nathan Harris at n.harris@egsa.org for more information. ●

Nathan Harris
Director of Education

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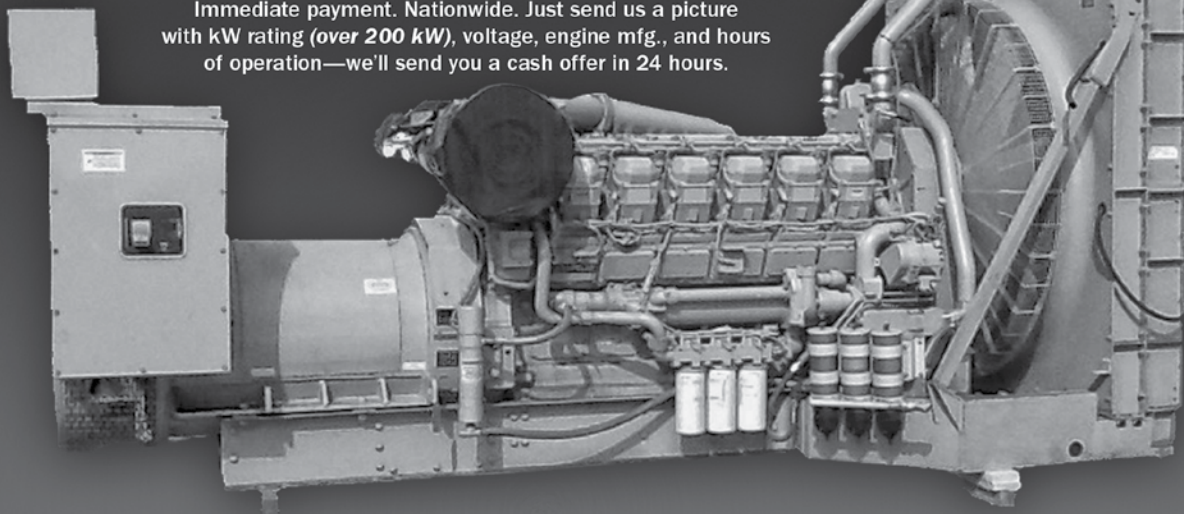


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Conference Connections: 10 Tips for Success



Shana Duthie
*Committee Chair,
Marketing and
Membership*

Conferences are an essential aspect of any marketing and sales strategy, so it's crucial to utilize your time at the conference effectively. Recognizing that not all attendees are sales and marketing professionals, I've compiled a list of the top 10 tips for conference engagement to ensure everyone can make the most of the event. Keep in mind that many of these items may happen organically. Not every item needs a formal approach.

1) Be proactive during meals by seeking out new acquaintances to join or approaching individuals you'd like to know better. Meal-time provides an excellent op-

portunity to network and expand your connections.

2) Ensure you visit each of the vendors present at the conference. Engaging with them can lead to valuable insights and potential collaborations.

3) Actively take notes during presentations and engage in discussions with both speakers and fellow attendees. Sharing thoughts and insights can lead to meaningful conversations.

4) Make use of social media during the conference. Utilize hashtags and tag relevant accounts to share your insights and connect

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with others, expanding your on-line network.

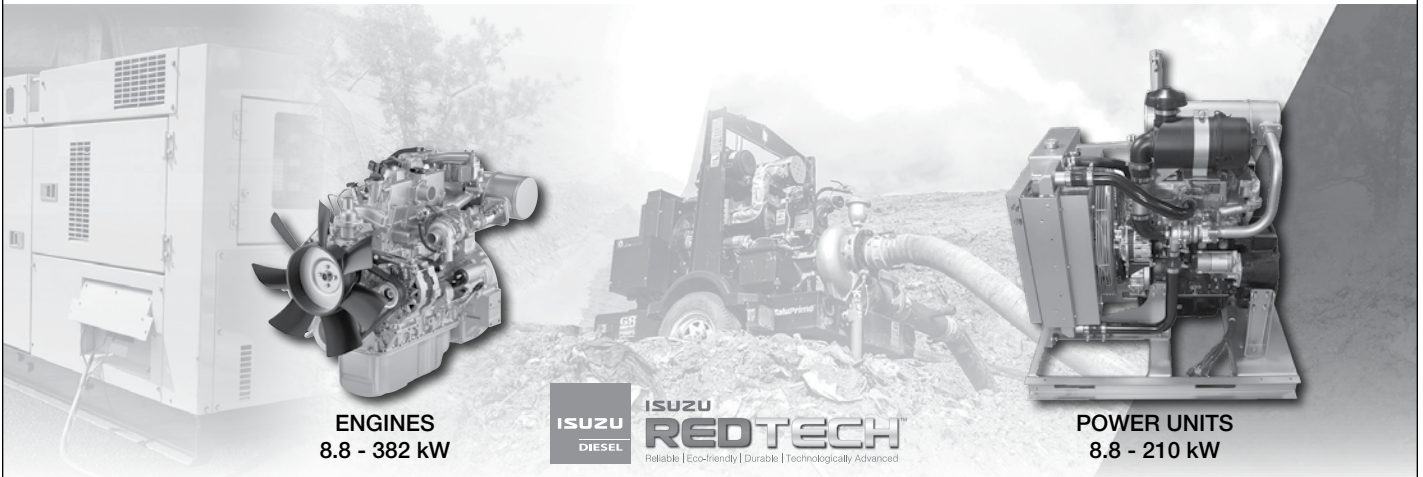
- 5) Attend networking events and social activities organized by the conference. These gatherings offer the perfect setting to make new connections and have a little fun.
- 6) Don't hesitate to initiate conversations with strangers and introduce yourself. Keep in mind that everyone is at the conference for networking and learning, so be open to new interactions.
- 7) Always carry an ample supply of business cards and exchange them with the people you meet. Additionally, collect business cards from others to follow up after the conference.
- 8) Utilize any downtime between sessions to follow up with new contacts. Send LinkedIn connection requests and schedule further meetings to solidify new relationships.
- 9) Engage with the conference app or platform by actively participating in discussions, asking questions, and seeking advice from other attendees. This interactive involvement enhances your overall conference experience.
- 10) Take advantage of workshops and breakout sessions offered during the conference. These specialized sessions provide opportunities to deepen your knowledge and gain practical insights relevant to your position and business.

Conferences offer a valuable platform for networking, learning, and promoting your business. By being prepared and actively participating, you can maximize the benefits of attending any conference, including an EGSA conference, or any other industry event. Embrace these tips to make the most out of your conference experience and leave with invaluable connections and insights to propel your business forward. ●

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Frederic B. Sargent

President, Great Service ForumsSM

The words “customer experience” may sound like an ordinary expression. But after two business experts, Joseph Pine II and James H. Gilmore, wrote a seminal article on it for Harvard Business Review in 1998, that combination of words has never been the same.

“Customer experience” is now standard business terminology. When its abbreviation “CX” appears in print, no explanation is required, especially because “CXO” (for “Chief Experience Officer”) has been an established position in the C-suite of many large companies for quite a while.

A few years ago, our team set out to create a simplified graphic to portray what we believed to be the main

The Customer Experience: Seeing Things from the Customer’s Viewpoint

In the last issue of *POWERLINE* we pointed out the importance of the role of service technicians in maintaining customer relationships. This time we present a graphic that our team has relied upon for a simplified representation of the phases of the customer experience—from the customer’s point of view. It can serve many purposes, including being a discussion guide in customer relationship training.

components of the customer experience—from the customer’s point of view—and fit them together so that they could convey the concept of a repeating cycle.

After all, the key to ongoing success of any service & maintenance organization is to develop and grow recurring revenues that are reasonably predictable year after year.

Here is how we envisioned the “customer experience cycle” for a service-related business, beginning in the sometimes-baffling sector labelled **START**.

Although this stage could pertain to acquiring products, hiring contractors, or doing both, for purposes of this illustration let’s suppose it has to do with hiring a qualified service & maintenance provider.

Recalling that every element here represents the customer’s perspective, the first question that may come to mind for most service & maintenance providers is, “How can we get the earliest indication that the customer has begun this preliminary process?”

Here is where many small companies have wished they could afford to have predictive analytics that they could rely on to identify customers who might be in the early stages of planning purchases.

But in most markets, in most industries, nothing that sophisticated is required. All they really have to do is engage everyone in their companies to watch for—and report back on—every indication of something starting to happen in the marketplace. Sales leads can emerge from the most unlikely places.

For each of the segments in the cycle there is a fundamental question. The service & maintenance team that can answer these will be in the best position not only to develop a long-term customer relationship but continue to expand it.

START	What motivated this customer to call us for service or maintenance?
SEARCH	Who referred this customer to our company?
SELECTION	What were the main reasons they chose our company for this job?
EVALUATION	What qualities does this customer value most in this type of service?
MEMORY	How would this customer prefer for us to keep in touch from here on?

In the **SEARCH** piece of the pie, the customer—commercial, industrial, residential, or otherwise—openly begins to seek a service & maintenance provider.

Although we may take that as a synonym for the verb “google,” even in the B2B world, customers’ initial effort may simply involve asking a colleague inside or outside their company for a recommendation.

“Who recommended you to our company?” is one of the first questions that a service provider should always ask.

Under the heading of **SELECTION**, we group all of the decision-making steps that customers go through in

order to select a contractor for service-related work.

It is a proverb that customers do not *analyze* proposals, they *compare* them. Professionalism in proposal-making really counts.

EVALUATION is the activity that customers engage in, formally or informally, when a service & maintenance contractor is engaged in their work. Often, the set of criteria that the contractor considers important does not coincide with what the customer considers important.

Understanding the customer’s priorities is key to every contractor’s success.

MEMORY is the most important sector on the graphic. The most important aspect of any service experience is how the customer remembers it. Every service call does not go well.

Many contractors have horror stories about service calls that went so badly that they were convinced they would never be allowed to return. How they followed up to rectify the situation often became the key to coming back and creating a customer for life. With luck, a service & maintenance provider can repeat the cycle time and again. ●

Frederic B. Sargent
President, Great Service ForumsSM

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Eco-friendly

Run-of-River Power Generation: A Case Study of the RivGen Power System in Igiugig, Alaska

By Robert Barrentine, *LCA & Sustainability Program Manager at Saint-Gobain Life Sciences*

Remote communities often rely on fossil fuels to produce their electricity. The climate change impacts of these generation systems are exacerbated by the transportation of fuel to the generation sites. Additionally, the volatile cost of fuel and transportation services places a financial burden on these communities. For these reasons, the adoption of community-scale renewable energy systems is advantageous. One company, Ocean Renewable Power Company (ORPC), has developed the RivGen Power System to harness run-of-river current power. The RivGen is integrated as part of a microgrid solution where the RivGen unit produces continuous baseload energy (40-80 kW) to a community. Excess or unused electricity is stored in an energy storage system, such as a battery bank, and excess demand is trimmed with a diesel generator.

The RivGen utilizes a helical cross-flow turbine design that is oriented orthogonally to river flow and parallel to the riverbed. The design utilizes towable pontoons with onboard buoyancy systems allowing for submersion deployment and retrieval. When deployed, the RivGen rests at the river bottom. This sub-surface configuration allows for year-round power generation in areas where freezing conditions would otherwise limit surface water operation.

In 2014, ORPC built and operated its first RivGen Power System at the bottom of the Kvichak River to supply the remote Alaskan village of



ORPC RivGen Power System before submersion deployment. The device is 15.7 meters long, 14.3 meters wide, and 3.5 meters tall. Credit: ORPC

Igiugig (Igiugig Hydrokinetic Project). As ORPC updates the design of its RivGen product, it uses the Igiugig installation as a pilot site for furthering the development and testing of its flagship product. According to ORPC, the annual benefits realized by the Igiugig community include 400 metric tons of avoided CO₂-equivalent emissions and substantial cost savings (\$70k). In addition, the community was able to capitalize on 100% renewable energy for 275 days out of the year in 2021.

While the practicality of the RivGen system has been proven year-on-year by the Igiugig pilot project, the

potential impact of the turbine installation on the local ecosystem needs to be better understood. The Kvichak River is home to the world's largest sockeye salmon population and is the basis of the Igiugig villagers' subsistence and livelihoods. The National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) is a U.S. agency responsible for the stewardship of national marine resources by preventing lost economic potential associated with degraded habitats. In the case of the Igiugig Hydrokinetic Project, NOAA Fisheries has issued a 10-year pilot license to evaluate the impact on anadromous fish and Bristol Bay's sockeye salmon runs. In co-

ordination with NOAA, the University of Alaska Fairbanks actively monitors the project during sockeye smolt out-migration. The pilot license expires in May of 2029. To date, not a single injury or mortality to marine or aquatic life has been observed.

The use of community-scale run-of-river electricity generation technologies, such as the RivGen, are proving to be sustainable and robust methods for producing baseload electricity to remote communities. Integration with microgrids allows for flexibility of these systems. In the case of the Igiugig project, more data is needed to evaluate the environmental impacts, but the data to-date is promising! ●

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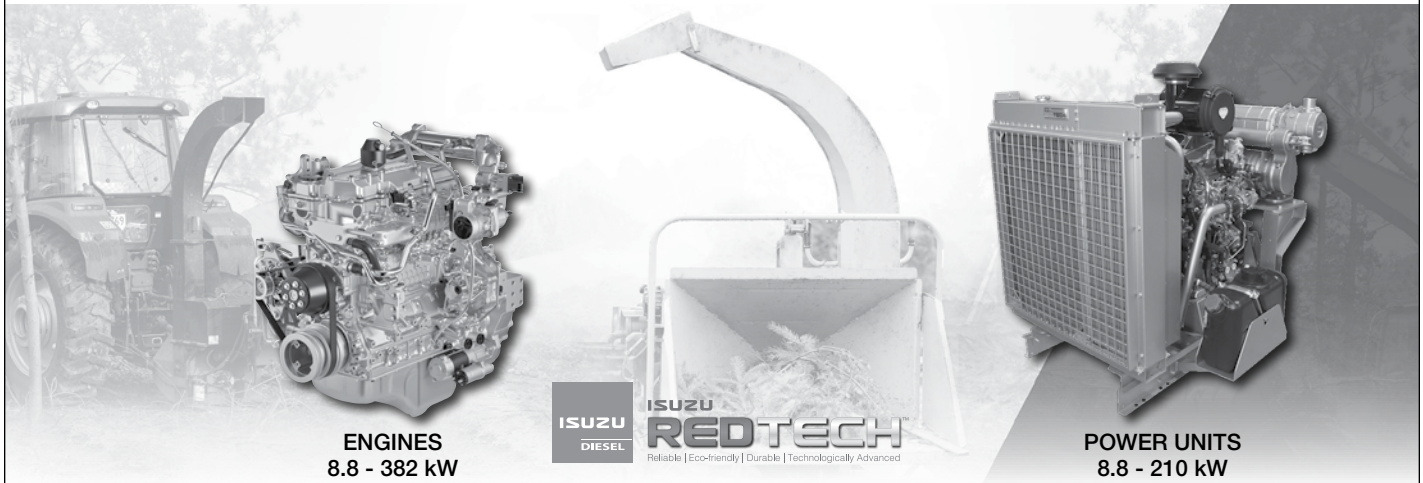
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COMMITTEE HIGHLIGHT

Microgrid Committee Highlight

Why does EGSA need a committee for microgrids and renewables and what is its mission?

The on-site power industry is growing and expanding in incredible ways. There seems to be an unending list of new topics to be aware of – whether that’s legislation like the IRA, or technologies like batteries and fuel cells, or business models like distributed generation. It can be a significant workload to keep up with all these topics while also knowing who to talk to and how to use that information to drive actual value for your company. The Microgrid and Renewables Committee encapsulates all these issues. We seek to identify the most perti-

nent topics in the energy industry today and foster an intentional community where we can discuss these issues and ensure that our companies are able to thrive.

And yet, the demand for thermal generation seems to continue as always. In spite of, or maybe even because of, the growth of renewable energy, we’re seeing markets emerge that are full of ripe opportunities for diesel and natural gas generation – if only we can realize them. The Microgrid and Renewables Committee occupies a unique place within the industry where we can mobilize our collective knowledge and experience to ensure that our energy infrastructure

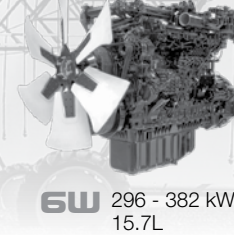
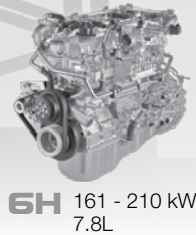
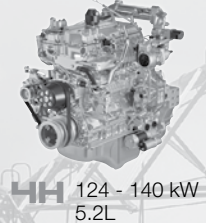
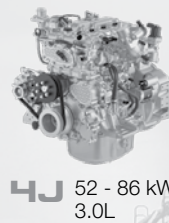
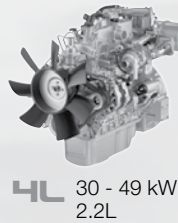
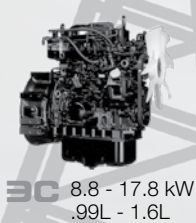
remains reliable and resilient well into the future. Through this committee, we can advocate for our shared objectives and ensure that renewable microgrids have the generators they need to keep running. How do we remain relevant in a world that turns more and more to renewables? By working together.

What does the Committee do?

The Microgrid and Renewables Committee is a newer committee. For most of our existence, we’ve focused on driving content for the conferences – both through the main forum and educational sessions – with an emphasis on the integration of solar and

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energy storage systems with gas/diesel generation. As we move into the next phase of our committee's development, we look forward to more opportunities for engagement through regular virtual meetings, more actionable subcommittees, and growth.

I like to view the microgrid committee as both a funnel and an on-ramp. We seek to bring in thought leaders who can distill information from the larger microgrid and renewable markets while also identifying specific targets and avenues for members to engage in these spaces themselves. We want to offer the EGSA membership opportunities for both education and empowerment.

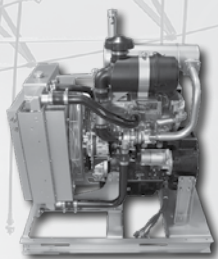
How can a member participate?

For this to work, we need a broad group of people to be engaged with this committee. We need people who have practical experience in working with microgrids every day; we need people who are developing new technologies and solutions; and we need people who don't have time to do either of these things but are ready to ask the hard questions and ensure that our content is bringing value to the membership.

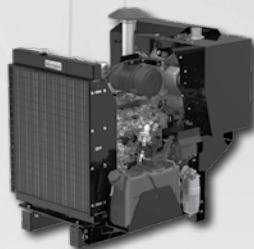
Look for the next microgrid committee meeting in upcoming EGSA emails or reach out to committee leadership for more information. ●



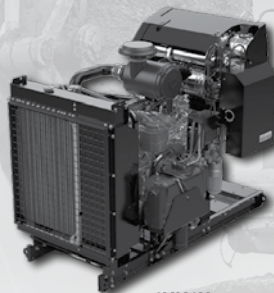
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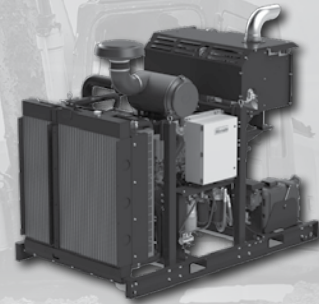
4LE2X P/U
Tier 4 Final Power Unit



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4HK1X
GenSet Ready
Tier 4 Final Power Unit



New 6HK1X
GenSet Ready
Tier 4 Final Power Unit

Advanced



Generating Returns: Can Private Equity Help Your Standby Power Business?



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Private equity has become more prominent in the standby power industry with companies such as GenServe, GAL Power, Central Power and National Power all partnering with private equity firms in recent years. For even the most seasoned entrepreneurs, discussions with private equity firms can be complex and unfamiliar - touching on topics like valuation, capital requirements and succession planning. Often, entrepreneurs will ask themselves numerous questions after being contacted by a private equity firm, including: what is private equity, what type of private equity firm fits my needs, and what does partnering with a private equity firm actually mean for my business? Our goal in this article is to demystify private equity and highlight the questions you should ask yourself if you decide to engage with or learn more about private equity.

What is private equity and why would I partner with a firm? Private equity is a segment of the investment industry whereby firms make equity investments primarily in private businesses. Typically, private equity firms seek to make investments in growing businesses, with the intention of driving continued and accelerated growth to generate a return on their investment. These firms invest on behalf of a diverse group of investors including family offices, endowments and pension plans.

There are various reasons for businesses to partner with a private equity firm, including:

- Driving growth initiatives,
- Providing capital to fund strategic projects and acquisitions,
- Providing partial or full liquidity to shareholders to de-risk personal net worth,
- Strengthening the company's balance sheet, and
- Assisting with ownership transitions for passive shareholders or succession plans from one generation of entrepreneurs to the next.

Under what terms can I expect a private equity firm to invest? Private equity firms each have their own style of investing; but in the simplest terms, this can be in the form of a majority investment (also known as a "buyout") or minority partnership. With a majority investment, the existing shareholders give up operating control of the business to the private equity firm, who would control the business going forward. This option could be attractive to entrepreneurs who are looking to step back from the business and receive significant or full liquidity. In minority partnerships, the existing shareholders retain control of the business and the private equity firm invests alongside the existing shareholders to help accelerate its growth and strategic value, which may eventually lead to a more lucrative sale for all parties in the future. With this structure, the existing team continues to benefit from further upside in the business and may still receive partial liquidity, depending on the situation.

In both majority and minority transactions, it is important to understand the difference between ownership and rights. Even in the case of a minority partnership, the private equity investor will have governance rights such as board representation, budget approvals, and liquidity or drag rights after a certain number of years. Discussing these rights clearly at the outset is a must to foster a successful partnership.

How will I operate differently when I partner with a private equity firm? Every private equity firm will have a different approach to provide ongoing support for the business. Some firms provide capital and have limited involvement with the business on a go-forward basis (i.e., only engaging around and attending quarterly board meetings). Others work more closely with management, supporting initiatives like acquisitions and major capital expenditure projects. In our experience, businesses typically benefit from a partnership-focused private equity firm in the following ways:

- Supporting acquisitions, including identification of targets, negotiations, due diligence, and closing/integration plans,
- Building strong corporate governance practices, including bringing on independent board members, changing the corporate structure and implementing critical policies,
- Hiring key management personnel to further strengthen the organization, including finance, operations, marketing, and sales, and
- Accessing better and cheaper financing, (i.e., leveraging the private equity firm's network of lender relationships).

What does the process look like for working with a private equity firm? The process begins with initial negotiation of the key transaction terms: the valuation of the business, percentage of ownership being sold (majority or minority), future involvement of existing owners/management and key rights post-close. Once this is completed, a letter of intent (LOI) would be executed by both parties and due diligence would commence. During this period, the private equity firm would analyze several aspects of the business including financials, operations, and management to better understand the business and begin planning for its future.

Once the due diligence process is complete, the existing owners would enter into a sale and purchase agreement as well as a shareholder agreement which together define the terms of the sale and revised rights of all owners. Once all the agreements are signed, the transaction would close, and the new ownership would be in effect. Afterwards, the private equity firm and management would work together on implementing the growth strategy of the business, including how to take advantage of opportunities such as acquisitions, winning new customers or forming strategic relationships.

What does this mean for my business? The market for standby power is continuously evolving, and with these changes, business owners will increasingly need to explore alternatives to support their business. In the event you wish to receive full or near-full liquidity and step away from the business, selling to a buyout firm or a competitor could be an appropriate option. In this scenario, the entrepreneurs and existing shareholders should consider the following: am I receiving full value for the business, what is the plan for existing employees under new ownership and will the new owners continue to uphold

the brand and reputation that was built? Other the other hand, if you wish to continue driving the business and see value in its future but would like a partner to help capitalize on opportunities, pursuing a minority partnership with a private equity firm could be the best choice. In this situation, entrepreneurs and existing shareholders should consider the following questions: how will this private equity firm help drive value, what does a partnership look like with this firm, who would be involved and how would important decisions be made after the investment?

In the end, there is no right answer, but given the growth of private equity in the standby power sector, it is important to understand if private equity is right for you, and if not, how it may be impacting others – including your competitors. If you choose to engage with a private equity firm, understand your needs and alternatives beforehand and diligence the firm with whom you are communicating.

If you decide to engage with a private equity firm, we encourage you to take the time to learn about the firm before jumping into a transaction and we are happy to answer any questions you may have on the sector! ●

About the Authors

Mohit Kansal and Austin Sinclair are investment professionals at Clairvest Group (www.clairvest.com), members of EGSA and are attending the EGSA fall conference in San Antonio. Clairvest is a private equity firm based in Toronto, Canada that has been partnering with entrepreneurs to build strategically significant businesses for over 36 years. Clairvest is actively seeking opportunities to partner with businesses that have more than \$5M of EBITDA and will invest between \$30M and \$120M either in minority or majority transactions.

DISTRIBUTED GENERATION

Empowering the Future: The Role of Transfer Switches in Microgrids

New Design Approach for Microgrids



Robert (Benny) Benavidez

*Sales Executive,
Schneider Electric*

The New Energy Landscape

In an era where sustainable energy solutions are gaining momentum, microgrids have emerged as a promising avenue for powering communities and businesses. The New Energy Landscape is a transformation of centralized power generation to local, decentralized power generation, where the energy chain value has a directional exchange of energy, enabling stakeholders' autonomy over their energy. Businesses are obligated not only to return a profit to shareholders but also to deliver on Environmental, Sustainability, and Governance (ESG) goals, with the responsibility to develop a roadmap of attaining net zero by 2050.

This column aims to shed light on the concepts of microgrids and the significance of transfer switches in microgrid applications.

Microgrids: Pioneering Energy Independence

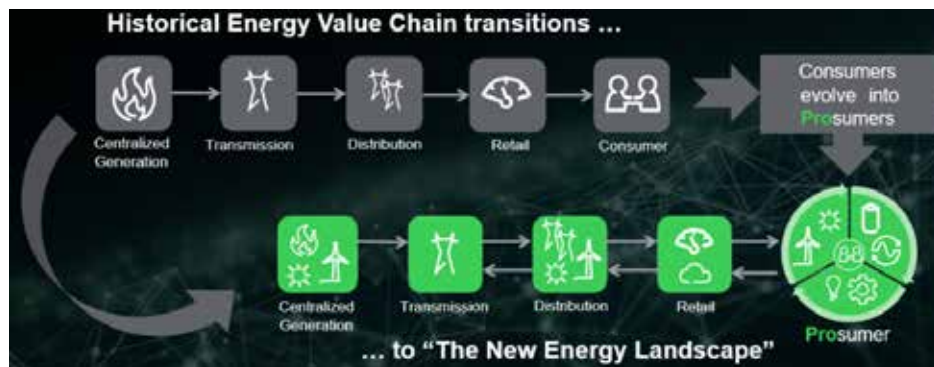
Microgrids are localized power systems operating independently or in conjunction with the main grid. They consist of distributed energy resources (DERs) such as solar panels, natural gas, and combined heat and power (CHP) generators, trending to become leading energy sources in the U.S. microgrid market. By leveraging these resources, microgrids offer numerous benefits, including enhanced energy reliability, reduced carbon emissions, and improved grid resilience.

With the addition of energy resources and interconnected loads, the transformation of electrical infrastructure is critical. Two approaches are commonly employed regarding microgrid implementation: **greenfield** and **brownfield** developments. Greenfield refers to constructing a microgrid from scratch, typically in new developments or areas lacking infrastructure. On the other hand, brownfield developments involve retrofitting existing infrastructure with microgrid capabilities. Brownfield developments permit the use of existing infrastructure to

incorporate renewable assets. However, legacy equipment can inhibit the latest technology and add to the project's complexity, adding additional labor and engineering costs. Greenfield developments provide the most flexibility, giving clients a blank canvas for which DERs to incorporate and how they operate. The prices are usually higher; however, the design process and execution should be more fluid.

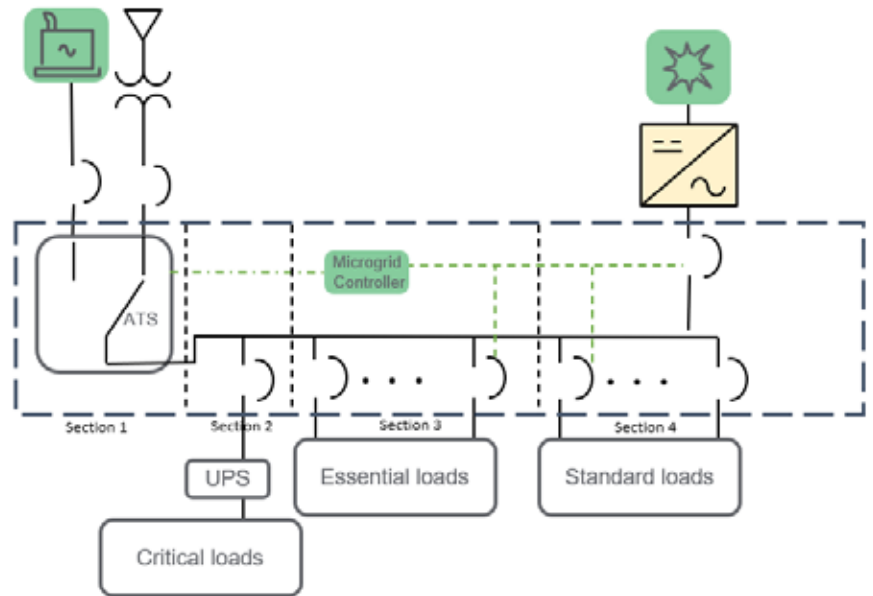
Anchor Resources: The baseline of the Microgrid.

Microgrids require an anchor resource to operate. The two most prevalent anchor resources are utility and generator. Compared to the newer technologies, generators are a resilient and essential source of emergency power. Other technologies like Energy Storage Systems (ESS) can serve as an anchor resource, but the performance of battery storage across a range of durations for lithium-ion chemistries ranges from 2-10 hours. Although ESSs' are greener in the sense of carbon emissions, the available runtime jeopardizes operations experiencing a prolonged outage.



Prosumer: the evolution of the consumer that now has the flexibility to consume, produce, and export power.

Anchor resources provide a baseline of power. Cogeneration and emergency generation are increasingly used to anchor local renewable generation. Renewables always “on” are grid-tied, meaning they must go offline when the electrical grid is disrupted. When the microgrid islands, the anchor resource provides a stable voltage and frequency source, making these grid-tied resources transition to microgrids. Energy resources like photovoltaic, BESS, and other cleaner technologies can lack black-start capabilities. The importance of having a reliable energy source provided through an Automatic Transfer Switch or breaker scheme can be the anchor for the whole microgrid system. Customers can increase power capacity and intelligently distribute power to maximize savings and reduce their carbon footprint.



Notice the microgrid controller? This PLC controller ensures the PV inverters are in sync, manages PV production, and monitors load demand. If capacity is available, the PLC will add load based on prioritization. The dotted green lines connected from the microgrid controller to each breaker indicate hard-wired controls to operate the breakers as needed.

Transfer Switches: Enabling Seamless Transitions

Automatic transfer switches (ATS) are devices used in electrical systems to automatically switch the power supply from the main source to an alternative source, such as a backup generator, in case of an outage or failure. They aim to ensure uninterrupted power supply to critical loads, such as hospitals, data centers, and emergency systems, minimizing downtime and maintaining operational efficiency. ATSs monitor the voltage and frequency of the main power supply and automatically initiate the transfer to the backup source when an interruption is detected, providing a seamless transition.

By their nature, transfer switches are essential components in microgrid applications. They ensure smooth transitions between grid-connected and islanded modes. Transfer switches enable the Microgrid to seamlessly disconnect from the main grid during power outages, initiating a transfer to an alternate source and becoming the anchor resource to enable electrical resilience.

Second, transfer switches facilitate microgrids to integrate renewable energy sources seamlessly. Whether a brownfield or greenfield application,

a transfer switch can be a pivotal anchor resource for photovoltaic (PV) implementation. Let’s take the block diagram as an example.

The transfer switch in this example is a contactor-based mechanism connected to the utility. The PV is in grid-tied operation, where the inverter (yellow box) is synchronized to the utility’s voltage and frequency. Under normal conditions, the ATS provides power to the loads, with PV production supplementing the load. Upon loss of utility, solar panel systems are designed to turn off automatically, and the transfer switch will automatically send a start signal to the alternate source (genset). Generators should be sized to the entire facility’s load. If they’re undersized, per code, they must support life safety (critical) (NEC 700.12) and legally required (NEC 700.3) loads. In the event the generator cannot support the entire facility’s load. PV can operate in ‘islanding’ mode with the generator, supporting optional standby loads (700.20), which are not required by code but may be desirable for continued operation during a power outage.

Transfer switches also have the bypass-isolation feature. This facilitates maintenance and testing operations.

Facilities can avoid a shutdown by operating the transfer switch in bypass mode. This safely isolates and transfers the facility’s load to perform maintenance. Contact your local AHJ for shutdown guidelines practices. The manual handle on the bypass switch ensures the event controls. It allows the microgrid operator to selectively connect or disconnect from the utility grid per their requirements.

Let’s look at another design approach with a brownfield development. The generator in this block diagram provides emergency standby power for the critical and legally required. It’s not large enough to support any additional loads. Suppose your facility needs more capacity due to the influx of employee electric vehicles. How would you implement a microgrid without disrupting the existing infrastructure?

The answer lies with an automatic isolation switch. Existing electrical infrastructures can remain in place with isolation to disconnect energy resources – most commonly Photovoltaic and Battery Energy Storage System (BESS), which takes advantage of the economics, resiliency, and sustainability benefits.

DISTRIBUTED GENERATION

Remember, Battery Energy Storage Systems and Photovoltaic panels are grid-tied devices. The Microgrid must first disconnect from the primary service to enable an island-able operation. Protecting workers upstream working on equipment is a safety and utility requirement.

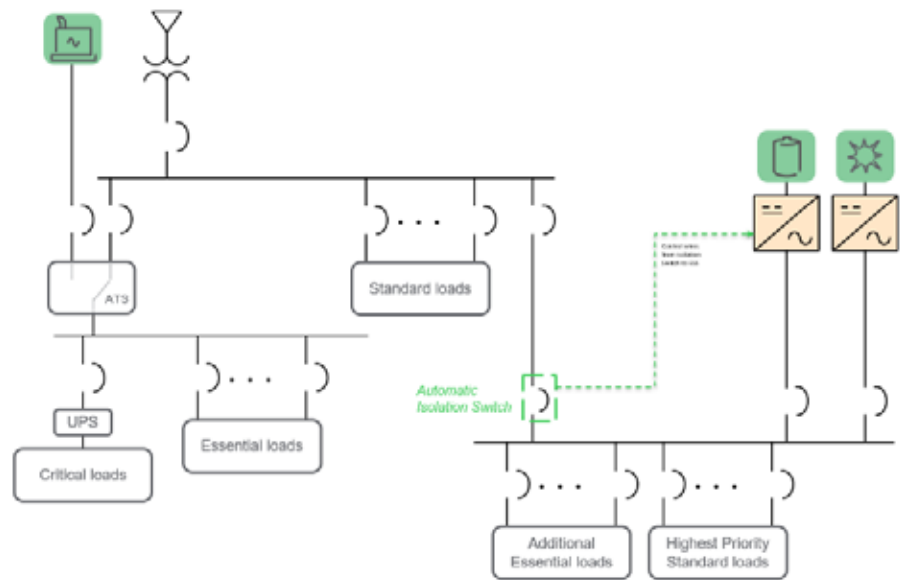
A microgrid can be designed to enable resiliency, so why leave loads stranded if the assets onsite can provide electrical resiliency?

The automatic isolation switch has a controller that monitors the primary (upstream) source and inverter (downstream) source phases, including overvoltage, undervoltage, over-frequency, under-frequency, phase rotation, and more.

Let's say a weather event interrupted the primary service. The isolation device would sense that the primary source is no longer available. After a set time delay, the isolation switch would open its motorized breaker and send a control signal to the battery inverters to enable resiliency, or grid-forming mode, allowing the inverters to create the reference voltage and frequency to become the "anchor" resource and can form its grid. The isolation switch simplifies the add-on renewables into brownfield applications while providing resiliency and supporting loads that would otherwise be stranded.

Towards a Resilient Future: Evolution of Microgrids with Transfer Switches

Automatic transfer switches (ATS) are crucial components within a microgrid system. They provide seamless and reliable power transfer between different power sources. In case of a power outage or a change in power source availability, ATS automatically switches sources to ensure continuous power. This allows microgrids to operate independently from the main grid and permits the integration of re-



The green box highlights the automatic isolation switch. It's an electrically operated breaker with a controller, like an Automatic Transfer Switch, to monitor all three phases of the primary service. The dotted lines to the inverter system are control wires to signal to initiate island mode. The additional and high-priority loads are the loads that would be stranded in the outage conditions.

newable energy sources, enhancing their reliability and resiliency.

ATS can be implemented in various applications, whether a greenfield (newly developed) or a brownfield (existing) site. In greenfield applications, ATS can be installed during the initial construction phase, enabling efficient integration and seamless operation of the microgrid system. On the other hand, in brownfield applications, where microgrids are added to existing infrastructure, Automatic Isolation Switches can be implemented to enhance the flexibility and reliability of the power distribution system, keeping the legacy equipment intact.

Delve Deeper and Learn More

Contact us to learn more about the exciting road ahead, including training on electrical distribution and software solutions. Further, we explore how to become our customers' preferred channel partner or long-term service provider. ●

<https://www.ascopower.com/us/en/> - ASCO Power Technologies

Sources

- Grand View Research: U.S. Microgrid Market
- NEMA – The Power Of Microgrids
- EC&M – Emergency Systems and the NEC
- IEA - Net Zero by 2050
- NREL - Utility-Scale Battery Storage
- Palmetto - What is Solar Islanding?
- PG&E – Disconnect Switch Requirements for Distributed Energy Customers

MEET THE TEAM

Meet Your New EGSA Director of Conferences

As we approach another great fall conference, there is a new face that will be in San Antonio joining the EGSA team. I'd like to introduce myself. My name is Ushma J. Suvarnakar, and as the new Director of Conferences I am excited to meet and learn all about the EGSA membership and community.

My experience in conference and event planning dates back to my undergraduate days at the University of Pittsburgh. After moving from Pittsburgh to DC after graduation, I started my professional career as conference planner for a variety of different organizations, ranging the gamut of industries over the past 2 decades. Rising through the ranks as a meetings assistant to meeting planner to director of meetings, my passion for event planning continues to grow. I have had some amazing experiences planning a conference series in Africa, visiting new and fun cities, and participating in numerous customer advisory boards to increase tourism and hospitality.

What are your primary goals as the new Director of Conferences?

As the director of conferences, I'm responsible for all things soup to nuts with the logistics of the EGSA Spring and Fall Conferences. From contracting with the hotels to coordinating off-site events to working with all the vendors to produce a successful conference, I've got my hands in all of it. I am dedicated to bringing my passion of event coordination to EGSA and its members.

What do you like about working for EGSA so far?

In the short amount of time that I've been with EGSA thus far, I have enjoyed the relaxed vibe between my colleagues, especially during our all-

staff check-in meetings. I haven't had as much experience with the membership yet, but I am looking forward to meeting with EGSA members in a few weeks in San Antonio.

I appreciate the welcome into the EGSA Family! ●

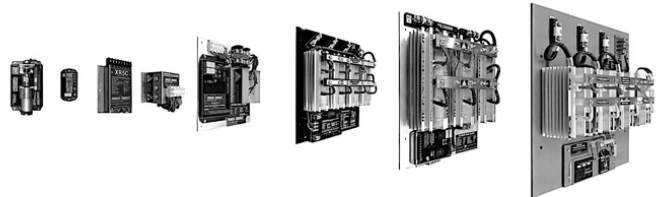


Ushma J. Suvarnakar
EGSA Director of Conferences
u.suvarnakar@egsa.org

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2023 FALL CONFERENCE

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

NETWORK ► LEARN ► ADVANCE

SCHEDULE AT-A-GLANCE

Sunday, October 1

- Committee Meetings
- Welcome Reception

Monday, October 2

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

Tuesday, October 3

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

General Sessions:

- Keynote Speaker Hall of Famer Reggie Jackson presents *Mr. October: Overcoming Failure on the Path to Success*
- Energy Expert Robert Bryce presents *A Sober Look at Energy Transition*

Educational Sessions:

- Mission Critical Generator Controls
- The Value of Community Partnerships for Small and Midsize Businesses
- Small Scale Microgrids
- Building Buy-In Around A Clear Mission & Vision
- Codes & Standards Development Process
- Why Service & Maintenance Matters
- Demand Response – Benefits for Businesses and Homeowners
- HVO Fuels vs Bio Diesel

egsa.org/Events/Conference-Home



Power Equipment Group (PEG)

Who we are

Power Equipment Group (PEG) began 31 years ago in Dallas as a smaller division of a larger manufacturer's rep firm specializing in noise and vibration control. Today, it is a standalone firm covering nine states for twelve A List manufacturers in the power packaging industry. PEG is headquartered in San Antonio with offices in Fort Worth, Houston, and Tyler, Texas.

What we do

"Manufacturers reps are a great deal for manufacturers. We are free until we sell something and present a variable cost to the owner. We are purely commissioned salespeople. Manufacturers would kill for their direct staff to be willing to do this" says owner Ron Defries. "It's the ham and eggs scenario: The direct guy is the egg and is involved. The rep is the ham, he's committed because if he doesn't sell, he starves.

PEG has built the company around service. "We have a saying at PEG: More service, less policy" says Defries. Customers want a relationship that is more than a warranty and a shrug of the shoulders. Price is all that matters to some customers. We aren't suited to that type of company. We are looking for customers that value integrity, quality, and overall project experience.

Less is More

PEG has a narrow focus on our market. We keep our line sheet lean and congruent, representing only a dozen manufacturers. Some of our competitors represent twice that many and carry everything from toasters to control panels. We take a specialized approach to the customer base and work to be an authority on every product we sell. By having a smaller line sheet and narrowing our focus, we are better on the technical



PEG has represented Stored Energy (SENS) for almost 30 years. Their new SuperTorque engine starting system is revolutionary and will push lead acid batteries to the dinosaur pen where they belong. One SuperTorque takes the place of 4 8D batteries and the accompanying charger at only 89 pounds and half the cost. Everyone wins....except the FLA battery sales guy!

side and develop deeper relationships with our lines. We have been with most of our lines for decades and know the owners on a personal level. This makes for a great operating environment where we are free to help the customer without having to fall back on policy or get permission from the plant. We will always ask for forgiveness from the factory rather than permission when it comes to customer service.

Rigidly Flexible

The market is changing at a rapid pace, faster than anything the company has ever seen. Environmental awareness for instance is always on the end user's mind. The post pandemic marketplace is here to stay. If you think "this will all get back to normal", you are in for a rude awakening – there is no "normal". If you would have told me a few years ago that some of our larger gensets would have a lead time of "years", I would have thought you had just landed in an Iowa cornfield,



Catalytic Combustion out of Bloomer, WI has been on our team for many years. They are the full package from the shop floor through project management all the way to the ownership. Here, SCRS's are set at a Permian compressor station.

but here we are. The market better find a way to deal with this because it isn't changing anytime soon, and it will never change back to "before".

"PEG operates in a complex environment. The key is staying rigid enough to have a plan in place and be willing to throw it out the window in the name of customer service" says Defries.

Why?

We aren't for every manufacturer. We are stubborn and pushy with our lines on behalf of the customer. Our customers deserve a rep that will go to bat for them when the lead is flying. "I rarely disagree with customers. I disagree with lines weekly. But the relationship matters here – we are both after the same thing" says Defries. I think we often forget the human side of what we do. Behind every quote, behind every order is a person just trying to get through the day and do their job. We intend to help them all we can. ●

2023 FALL CONFERENCE PREVIEW

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

EGSA is ready for another successful Fall Conference and to present you with a shockingly good time in San Antonio, TX. Located in the secluded Hill Country, 20 minutes outside of downtown San Antonio, the Hyatt Regency Hill Country Resort and Spa boasts exceptional amenities. On the vast 300-acres of a historic ranch, the resort includes a high-end spa, 5-acre water park with lazy river, multiple pools and a waterslide, biking and nature trails, an on property 27-course golf course, tennis, sand volleyball and more. There are also multiple dining options on property, ranging from fine dining to casual and family friendly.

You'll see the best of Texan southern hospitality through the offerings and activities both onsite and in the surrounding areas. Don't forget to visit Texas's most famous historical landmark, the Alamo, which attracts over 2.5 million visitors annually.

Why EGSA Fall?

EGSA Conferences are the only events that are for the industry and by industry. This is your opportunity to **Network** ▶ **Learn** ▶ **Advance**. See what your colleagues have said about attending EGSA Conferences and why you don't want to miss Fall.

"The EGSA conference has been a true benefit to my company and my personal growth within the industry. The educational classes are truly beneficial and cover what's new in the industry and information you don't even realize you need and can use. The networking part of this conference is the highlight for me.



Meeting new people, establishing relationships with those in the same industry, and building on those relationships. I look forward to every conference, seeing familiar faces and meeting new ones."

– Sheila Adams
WPI

"The EGSA 2023 conference was great. The fast pace of the convention coupled with an excellent keynote speaker made for a great ROI for PEG. To be honest, I had grown a bit sour on EGSA, but this rekindled my interest. I saw an organization who understood our industry and the need to be relevant in it. We rejoined EGSA and look forward to San Antonio."

– Ron Defries
Power Equipment Group

"In my view, the EGSA conference "ace in the hole" has always been the hallway conversations. Many times that then leads into a product discussion, and off we go into a business relationship. The power generation industry needs a networking platform to get people together other than social media, and that is where EGSA conferences and other events come into play."

– Charlie Habic
Gillette Generators

"The result of our attendance at our first EGSA 2022 conference had immediate impacts and ultimately secured us two new meaningful clients and business. We also forged new relationships with a fuel tank manufacturer, a used equipment buyer, a generator

Keynote Speaker

Mr. October: Overcoming Failure on the Path to Success

Reggie Jackson, nicknamed 'Mr October', is a titan of American baseball, widely recognized as one of the most prodigious power hitters in the history of the sport. His career spanned an impressive 21 seasons in Major League Baseball, during which he made a lasting impact with the Oakland Athletics and the New York Yankees.

Jackson's career is a testament to his unrelenting dedication and unwavering determination. Over the course of his career, he earned five World Series championships and was named the World Series MVP twice. He was also selected as an All-Star an impressive 14 times and won the prestigious American League MVP award in 1973. Jackson's unrivaled talent and numerous accomplishments cemented his place among the elite in baseball history and in 1993, he was inducted into the Baseball Hall of Fame, a fitting tribute to his enduring legacy.

To this day, Jackson's expertise and knowledge are highly valued in the sport, as evidenced by his role at the Houston Astros as a special advisor to the owner, Jim Crane. His unwavering passion for the game and his lasting impact on the sport make him a true inspiration to generations of baseball players and fans alike.

After his retirement in 1987, Jackson has become more focused on his passion of preserving automotive history. The collection spans from the 1930s to the 1980s and even includes many exotic models like Ferrari. Jackson is one of America's greatest classic and muscle car collectors. He is the owner of the popular Reggie Jackson Collection, which has attracted automotive enthusiasts from around the world. The five-time World Series winner and Hall of Famer knows his automotive history and has a very impressive collection of vehicles on display, including Corvettes, Mustangs, and many Camaro models.

Reggie Jackson also started the The Mr. October Foundation and partnered with STEM 101 since 2014. They launched their first program in the Bronx in 2015 and have expanded to schools in Detroit, Oakland and St. Louis. The Foundation focuses on improving STEM education and workforce pipeline for underserved youth. Their goal is to inform and inspire kids in the areas of engineering, technology, manufacturing, medical and the trades while focusing on skill development and employability.



"I feel that the most important requirement in success is learning to overcome failure. You must learn to tolerate it, but never accept it."

—Reggie Jackson

General Session

A Sober Look at the Energy Transition

Robert Bryce is an author, podcaster, and film producer. He has been writing about energy, power, politics, and innovation for more than three decades. Bryce is the author of six books including most recently, *A Question of Power: Electricity and the Wealth of Nations*. He has given more than 450 invited or keynote lectures to groups ranging from the Marines Corps War College to the Sydney Institute as well as to a wide variety of associations, universities, and corporations. He is the host of the Power Hungry Podcast and the executive producer of the feature-length documentary: *Juice: How Electricity Explains the World*, which is available on numerous streaming platforms. He lives in Austin, Texas, with his wife, Lorin, who is an art teacher, photographer, and master potter. Follow him on Substack, robertbryce.substack.com, and on Twitter, @pwrhungry.



Controller manufacturer, and a silencer representative... all which resulted in orders for their products and services and solutions for our clients. In addition, the Dealer and Distributor committee meeting and Codes and Standards committee meeting provided valuable insight and strategic discussions to aid in our operations and planning.

Although it was the very first conference following the pandemic, the gathering was well-organized, well-orchestrated, and well-executed. The EGSA conference costs are now captured within our annual budget to ensure LionHeart continues to participate in future conferences, and we look forward to the upcoming conference in San Antonio!"

– Monty Hagberg
LionHeart Critical Power Specialists

Education Sessions

Mission Critical Generator Controls

Presented by: Peter Rossomando, Product Manager, ASCO Power Technologies and Daniel Fischer, Regional Systems Architect, ASCO Power Technologies

This session will discuss control architectures for mission critical generator paralleling applications. Topics covered will include PLC Architectures used in these systems, Redundant designs to include failure scenarios and elimination of single points of failure, and load control options.

The Value of Community Partnerships for Small and Midsize Businesses

Presented by: Becki Salmon, CEO, Hardin Industries

This session will identify the benefits of building community partnerships for a small to midsize business. We will explore ways to identify and establish partnerships, and leverage

Monday's Networking Events

Gear Head Tours

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During the tour, you will get to see first hand what makes EControls an industry leader in fuel systems. Their facilities include high tech manufacturing as well as engine testing equipment. This is a great opportunity to see this solutions provider.



SOUTHWEST RESEARCH INSTITUTE

Southwest Research Institute (SwRI), headquartered in San Antonio, Texas, is one of the oldest and largest independent, nonprofit, applied research and development (R&D) organizations in the United States. The SwRI tour will include two lab tours. Potential lab tours may include STEP sCO₂ Pilot Plant, Robotics, or Space Science.

these relationships to help grow talent, share resources, and identify business development opportunities.

Small Scale Microgrids

Presented by: Joshua Weaver, EVP, RaVolt LLC

This session will serve as an introduction to Microgrids and how they can support Generator sales growth for the industry and discuss how Solar Microgrids can be an additional revenue opportunity for Generator businesses.

Building Buy-In Around A Clear Mission & Vision

Presented by: Wes & Cindy Dove, Dove Development & Consulting

It's never all that difficult to find an organization's mission statement, but that doesn't mean the people within that organization have bought in or have an idea how what they do on a daily basis ties back to that statement. This lesson analyzes examples of mission statements and challenges leaders to think into how they could apply those statements if they worked in those organizations. This lesson also shares principles

participants can consider what developing and communicating their own company's mission and vision to the teams they lead and provides them with tools they can apply to ensure their mission and vision do more than just fill space in a nice frame on their lobby wall.

Codes & Standards Development Process

Presented by: Jeff Jonas, Senior Staff Engineer-Global Product Compliance, Generac Power Systems Inc. and Keith Page, Sr. Applications Engineer, Selkirk Corp (c/o Duravent Group)

Attendees will gain valuable insight into how the various standards development organizations work, the renewal cycle and the codes & standards they develop. Also, a working knowledge of what codes & standards are relevant to the installation of an engine generator.

Why Service & Maintenance Matters

Presented by: Frederic B. Sargent, President, Great Service Forums

Your customers may think of service

Tuesday's Networking Events



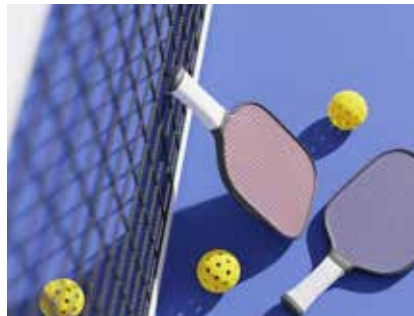
Golf Tournament



Margarita & Salsa Making Class



Clay Skeet Shooting



Pickleball Tournament

& maintenance as a necessary evil. You should regard it as a golden opportunity. This session will answer the questions: Why would anyone get into this business and if service & maintenance were a movie who would win the Oscars?

Demand Response – Benefits for Businesses and Homeowners

Presented by: *Harold Jarrett, Founder, OmniMetrix LLC and Jay Snyder, Certified Energy Manager, CPower*

This session will discuss the benefits of Demand Response programs to generator dealers, businesses and homeowners, as well as marketing methods for implementation. CPower and OmniMetrix have a unique partnership that can reduce brownouts and blackouts, reduce the strain on the electric grids while offering a monetary value in return for participation. With the power of OmniMetrix remote generator

monitoring and control, generators become connected distributed energy resources, available for demand reduction during peak grid demand. The rise in electric vehicles and increasing government policies pushing towards electricity vs. typical oil and gas products will further increase demand on an already taxed electrical grid. Our solution can help circumvent this issue, while providing generator owners compensation for their participation, and providing generator dealers competitive sales opportunities.

HVO Fuels vs Bio Diesel

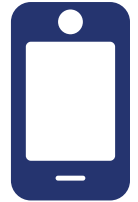
Presented by: *Ryland Berg, Service Manager, Collicutt Energy and RJ Johansen, Sales Specialist, Gaines Oil Company*

Bio-Diesel and HVO (Hydrotreated Vegetable Oil) are both renewable fuels derived from plant-based sources but there are significant differences between them in terms

of production methods, composition, and properties. These differences can impact fuel stability, engine performance, emissions, and lifecycle costs and HVO fuel provides advantages in all these areas.

Conference App

You will have everything you need to know about the conference in the palm of your hands using the EGSA Conference App! The app will provide easy access to speakers, sessions, sponsors, venue info, and more. All while providing the opportunity to network and engage with one another throughout the event.



Our conference app has the full details of the conference, but here are the highlights to get you started. For event registration, please visit: www.egsa.org/fall. The Conference App is available for both Apple and Android devices, search for "EGSA 2023" in the Apple Store or Google Play Store. ●

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. ●



aksa POWER GENERATION

POWER YOUR FUTURE

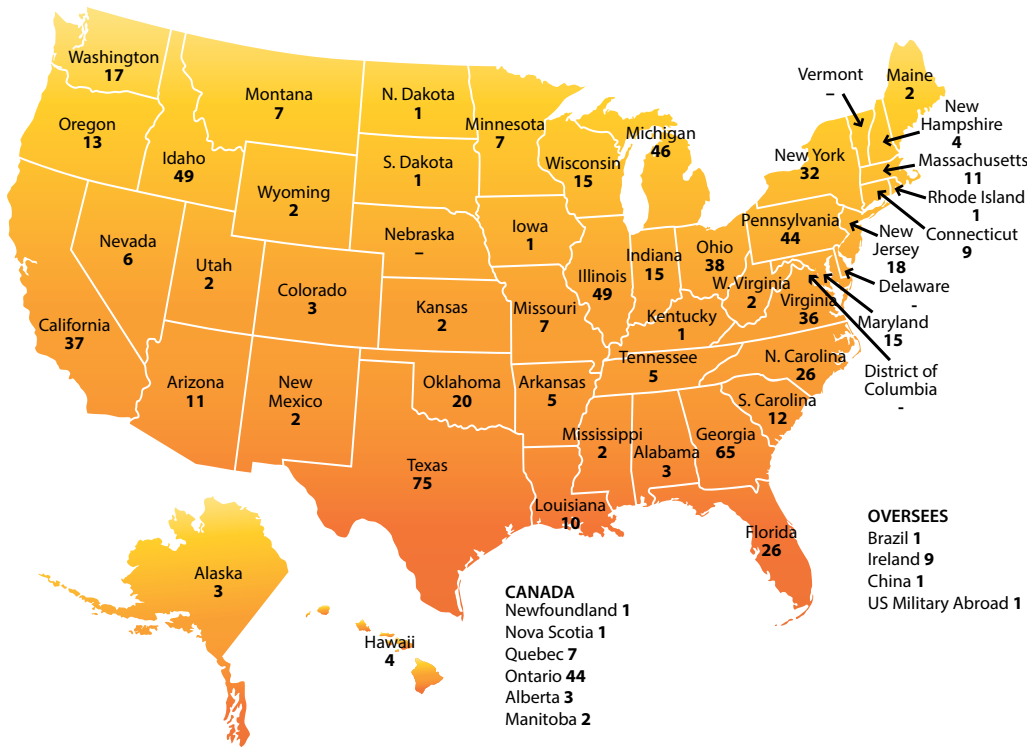
- 9 kW - 2 MW UL2200 Listed Diesel Generators
- 15 kW - 1 MW UL2200 Listed Natural Gas Generators
- Mobile Generators

C **UL** US LISTED

EGSA

www.aksausa.com

832* EGSA Certified Technicians



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).

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!

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JOB BANK

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.



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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

Dec 11-14

Virtual Advanced School

Summer 2024

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](https://www.egsa.org) for more information and available courses.



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 (Select Appropriate Category Below)		\$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. (Select Appropriate Category Below)		\$508	\$128	\$636	
Associate Membership Categories					
Associate Regular 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 _____

EGSA Enriches & Unites the On-Site Power Generation Industry with **POWERLINE Magazine!**

Tap Into the Captive Audience Your Organization Needs to Reach!

POWERLINE Magazine is one of the best ways to stay on top of the rapidly changing landscape of On-Site Power. From codes and standards, emerging technologies, best practices and education to industry trends, **POWERLINE** Magazine is the BEST vehicle to reach thousands in the Industry, with a targeted approach and vehicle.

Published quarterly, **POWERLINE** is the only magazine that thoroughly and exclusively covers On-Site Power, electrical generation or any method of producing power at the site in which it is generated. No other publication can match **POWERLINE** for its focus on On-Site Power.

If you sell products or services in this constantly expanding Industry, **POWERLINE** will deliver your advertising message to the key decision-makers you want to reach!

Our readership includes Manufacturers, Distributor/Dealers, Manufacturer's Representatives, Consulting and Specifying Engineers, Facility Managers, Service Firms, and end-users around the world who make, sell, distribute, and use generators, engines, switchgear, controls, voltage regulators, governors, and related products and services!

Every issue of **POWERLINE** includes important articles covering diverse industry issues, such as international markets, contracts, financing, trade agreements and more. Technical and "case studies educate readers about emerging technologies and commonly misunderstood applications. In addition, regular columns on industry codes and standards, news from Europe, manufacturer's representative issues, industry events and other compelling news keeps our readers engaged and informed year after year.

The EGSA member Job Bank is also a great industry resource for members and job applicants alike!

Harness the energy by advertising in POWERLINE today!

Advertising with **POWERLINE** is really a "no brainer." Our advertising rates are competitive and provide superior industry reach into this multi-faceted market.

For more information on building a customized advertising plan please contact

Marc Charon
m.charon@egsa.org
202.997.4666

No other publication can match **POWERLINE** for its focus on On-Site Power.

Powerline Readers are...

- Company Owners
- Marketing Professionals
- Upper/Middle Managers
- Facility Managers
- Salespersons
- Engineers
- Financial Officers

Working for ...

- Manufacturers
- Distributor/Dealers
- Manufacturer Reps
- Contractors
- End-users
- Consulting & Specifying Engineers

They read **POWERLINE** to gather product, market and trends information and make an informed final decision when recommending purchases or specifying components, services and equipment for new projects, upgrades, routine maintenance and retrofits.



Submit Your On-Site Power Article!

POWERLINE Magazine is continually seeking feature articles (1,500 - 2,500 words) addressing any one of the many issues pertinent to On-Site electrical generating systems and equipment. To be considered, please e-mail a title, brief summary and highlights of your article to the Editor, Nathan Harris via n.harris@EGSA.org.

POWERLINE

the Official Publication of the Electrical Generating Systems Association (EGSA)

Electrical Generating Systems Association (EGSA)

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Contact M.Charon@EGSA.org to advertise

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Ad Size	Dimensions in inches	Member	Member	Non-Member	Non-Member
	Width x Height	1-time (per edition)	4-times (per edition)	1-time (per edition)	4-times (per edition)
Full Page <i>Bleed Size</i> <i>Trim Size</i>	8.625" x 11.125" 8.375" x 10.875"	\$1,250 B&W \$2,220 4-Color	\$1,100 B&W \$2,000 4-Color	\$1,350 B&W \$2,425 4-Color	\$1,250 B&W \$2,220 4-Color
1/2 Page <i>Horizontal</i> <i>Vertical</i>	7.375" x 5" 3.687" x 10"	\$800 B&W \$1,770 4-Color	\$700 B&W \$1,600 4-Color	\$900 B&W \$1,975 4-Color	\$800 B&W \$1,770 4-Color
1/4 Page	3.687" x 5"	\$475 B&W \$1,445 4-Color	\$410 B&W \$1,310 4-Color	\$525 B&W \$1,600 4-Color	\$475 B&W \$1,445 4-Color



TERMS

All quoted ad rates are non-commissionable. In the case of four insertions, EGSA will bill the total in four installments. *POWERLINE* reserves the right to refuse advertising that is deemed to be in poor taste, not within reasonable bounds of accuracy, or otherwise deemed unacceptable by the publisher.

CANCELLATIONS

In the event of cancellation of a multiple-month advertising space order prior to the final issue of the contract, the advertiser agrees to repay EGSA any discounts granted for multiple insertions. All cancellations must be received in writing prior to the advertising sales deadline.

MECHANICAL REQUIREMENTS

Electronic files are required. Materials may be submitted as high-resolution CMYK Adobe Acrobat files with embedded fonts. All full-page ads should be submitted at bleed size with 1/8" bleed included. For additional information, e-mail Marc Charon at m.charon@EGSA.org

Company Name: _____ EGSA Member? Yes No

Billing Address: _____ Agency (if any): _____

City/State/Zip/Country: _____

Contact Name: _____ Contact's Email: _____

Contact Phone: _____ Contact Fax: _____

Signature: _____

By signing above, I hereby authorize placement of advertising in EGSA's Powerline Magazine

PAYMENT: Please check one of the following options:


Check # _____ Total Amount Due: \$ _____

Signature: _____ Date: _____

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

Ad Size	Color	Frequency	Position Request*
<input type="checkbox"/> Full Page <input type="checkbox"/> Half Page <input type="checkbox"/> Quarter Page	<input type="checkbox"/> B&W <input type="checkbox"/> 4-Color	<input type="checkbox"/> 1-time <input type="checkbox"/> 4-times	

**We will do our best to honor placement requests, but reserve the right to decide placement.*



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.

We Can Come To You!

Looking for a cost effective way to get all of your staff up to speed on power generation all at once? Need to introduce basic principles of on-site power to your team? EGSA will work with you to provide the most appropriate training for your team at your facility or virtually.

Customize your school by selecting from the 23 Basic and/or Advanced school modules for your core program. Contact us for more information.

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

San Diego, CA – October 9-12

2023 VIRTUAL BASIC SCHOOL SCHEDULE

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.

2024 IN-PERSON ADVANCED SCHOOL SCHEDULE

Summer 2024

2024 VIRTUAL ADVANCED SCHOOL SCHEDULE

Summer 2024

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 – 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.

POWERLINE

The Voice of the On-Site Power Generating Industry

Q2 23

Considerations for Microgrids with Dissimilar Energy Sources

To view the Q2 Edition of *Powerline Magazine* visit
www.egsa.org/publications

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A Comprehensive
Guide to On-Site Power

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