

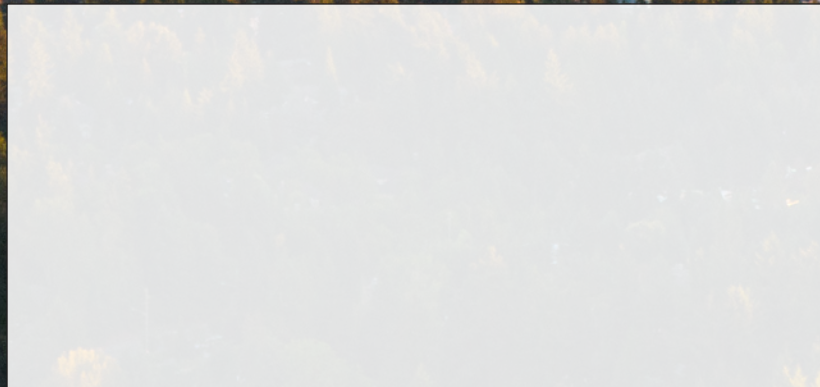
# POWERLINE

The Voice of the On-Site Power Generating Industry

Fall 24

## EGSA 2024 Fall Conference Preview

## How Artificial Intelligence is Shaping Our Industry



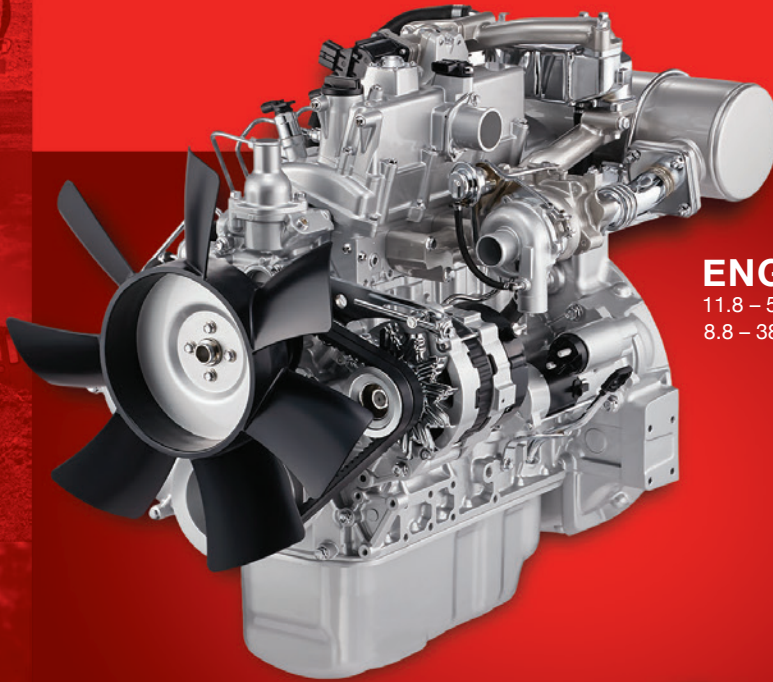
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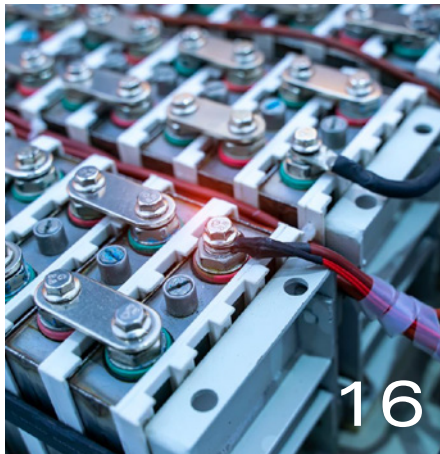
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# POWERLINE

The Voice of the On-Site Power Generating Industry

Vol. 59 No.3 | Fall 24



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# CALENDAR OF EVENTS

## AUGUST

**Aug 12-16**

**US Army Load Bank Troubleshooting & Certification**

Fort Belvoir, VA

**Aug 13-15**

**US Army Customized Basic School of On-Site Power**

Fort Belvoir, VA

**Aug 26-29**

**EGSA Advanced School of On-Site Power**

(Virtual School)

## SEPTEMBER

**Sep 4-5**

**EGSA Prep Plus**

(Virtual)

**Sep 15-17**

**EGSA Fall Conference**

Bellevue, WA

**Sep 17-18**

**EGSA Prep Plus and Test Proctoring**

Bellevue, WA

**Sep 24**

**ASCO Sponsored Webinar**

(Virtual)

**Sep 30 - Oct 2**

**EGSA Basic School of On-Site Power**

San Antonio, TX

## OCTOBER

**Oct 15-17**

**Load Bank Certification**

Owings, MD

**Oct 28-30**

**EGSA Basic School of On-Site Power**

(Virtual School)

## NOVEMBER

**Nov 1-4**

**EGSA Prep Plus**

(Virtual School)

**Nov 4-7**

**EGSA Advanced School of On-Site Power**

(Virtual School)

**Nov 19-21**

**Load Bank Certification**

Long Beach, CA

## DECEMBER

**Dec 9-11**

**EGSA Basic School of On-Site Power**

(Virtual School)

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Davidson Sales

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

## Message from EGSA's Chairmam

After an incredibly successful Spring Conference held earlier this year in Miami, FL, with 97% of attendees stating the conference either met or exceeded their expectations, I am excited to be riding the momentum heading into our Fall Conference being held in Bellevue, WA on September 15th – 17th, 2024. This year's Fall Conference, which is shaping up to have historic attendance, will have a very relevant theme of Artificial Intelligence and Onsite Power Generation. With the conference being held in the Pacific Northwest, where many of the very large tech companies are based, it just made sense to highlight recent developments in AI and their potential impacts and related opportunities for onsite power generation companies.

As we did in Miami, we will again conduct an Engineering Symposium during this conference. The symposium consists of accredited courses related to the on-site power generation industry specifically designed for the engineering community. EGSA will continue to cater to the engineering community. The Executive Board of Directors has agreed to allow qualified electrical engineers to ability to attend the EGSA conferences free of charge. As our members enjoy the ability to interact with leading onsite power manufactures and their representatives, it is just as important that the engineering community be up to date on the various technologies and solutions for onsite power generation.

This conference will also again feature our Significant Spouses and Others (SSO) program, first launched at our Spring Conference to great acclaim. This program grants spouses and partners the ability to attend the conference for free, thereby giving them an understanding of the industry and the opportunity to establish

deeper relationships with industry friends and colleagues. In the Spring, the SSO's did brunch and shopping on South Beach, in Miami. At this year's Fall Conference, SSO's can attend another brunch, do a little hiking in the beautiful landscape of the Pacific Northwest, or attend any of our great networking events.

I have been an active member with EGSA for many years. In all my time, I have not seen this organization running so well and providing such a high level of value for our members. Greater member value continues to be a key area of focus for our Board and Staff. Earlier this year, we launched our new MyEGSA Savings program offering discounts on office supplies, insurance, hotels, travel, rental cars, shipping, and much more, along with the new EGSA Knowledge Hub, a resource library where members can house their articles, white papers, case studies, and research reports, to easily capture sales leads and opportunities. This can only happen when you not only listen to your membership, but also make the proper adjustments that come from these conversations.

With the increasing need for electricity, coupled with North America's aging electrical grid, reliable onsite power has never been required at such a vast level. Where are you going to go and learn where the industry is headed, or are you going to be left behind? There are a lot of people and a lot of companies that are trying to find the right technology and/or the right combination of power generation technologies to best fit each individual power application. These applications with very different power consumption can vary, including everything from AI data centers to rest area EV charging stations.



**Daniel Barbersek**  
*EGSA Chair*  
Davidson Sales

So, if you are an EGSA member, stay involved, or get involved, you will get out what you put into it. If you're not a member, become one and grow your knowledge and meet some great people.

Thank you. ●

**Dan Barbersek**  
*EGSa Chair*  
Electrical Generating  
Systems Association

# EDUCATION

## Busy Summer, Busier Fall



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



I am pleased to announce that from an Education and Training perspective, EGSA just completed its best month ever. This August we were able to host five different schools/technician trainings. We started the month in Fort Belvoir, VA. Where Tom Wein hosted our first Load Bank Best Practices & Troubleshooting school. Prior to the training Tom spent time meeting with the soldiers and customizing the curriculum to the exact needs of their team. The biggest success story from that week was fixing a Load Bank that had been previously out of operation for two plus years. Tom and the soldiers worked together to troubleshoot the unit, identify the issue, and get it fixed.

“The EGSA Apprentice and Load Bank Technician course was a wonderful course that exponentially increased the knowledge of me and my team. Since we work with medium voltage every day, the information gained will be used frequently!”  
– SSG Alexander Turton, US Army

On the other side of Fort Belvoir that same week, we hosted a Basic Rowley School of Onsite Power for civilian engineers who focus on tactical power capabilities. This organization was referred to EGSA by the team at Army Futures Command who received a similar school in February 2024. It is great to see that our schools are being utilized by the Armed Forces and recommended across the military.

From Virginia, Tom traveled down to South Florida to deliver two separate trainings for 30 technicians who support a major wireless network provider’s Data Center. These technicians received Generator Troubleshooting, Load Banking Best Practices, and much more. This training is estimated to save the Data Center tens of


thousands of dollars in future maintenance.

Finally, to close out August we hosted our scheduled Virtual Advanced Rowley School of Onsite Power open to everyone in the industry. For the thousand-foot view, that was five schools/trainings hosted, four different trainings offered over those five schools, and over 70 students taught. I am thrilled with what we were able to accomplish this month and there is no sign of us slowing down.

In September we are officially launching our EGSA Prep Plus program. This is our Instructor-Led EGSA Prep Apprentice and Journeyman exam review course. This program is designed to build off the current EGSA Prep Online curriculum. It includes instructor-guided review of all main test topics to ensure that technicians are fully prepared for the exams. This class is offered in 4-hour review and can include both apprentice and journeyman candidates simultaneously. For more information and to schedule EGSA Prep Plus contact our Executive Director of Education, Tom Wein [t.wein@egsa.org](mailto:t.wein@egsa.org).

For more information on all of our education offerings, please reach out to Nathan Harris at [n.harris@egsa.org](mailto:n.harris@egsa.org). ●

**Nathan Harris**  
Director of Education



# 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!**

### How to get Certified?

- Apprentice and Journeyman certifications are each achieved by taking multiple choice tests that are designed to ensure technicians have the knowledge and experience to get the job done.
- The Apprentice test is completed in one sitting at an approved testing site.
- The Journeyman test is split into four modules that will be taken separately. This allows technicians additional time to prepare for each portion of the test.

### Where to get Certified?

- EGSA has approved testing centers across the world. To find out where the closest testing site is located, contact [egsa@ferris.edu](mailto:egsa@ferris.edu).
- If your company is interested in getting multiple technicians certified, you can also contact [egsa@ferris.edu](mailto:egsa@ferris.edu) for more information on becoming a proctor site. All you need is an HR/Administrative department to register as a proctor.

### 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 61 individual areas of expertise and has been upgraded to reflect current technologies.



Please visit [EGSA.org/Certification](https://www.egsa.org/Certification) for additional details on the program.

## LEADING THROUGH DISRUPTION

### The Critical Role of Leadership in a VUCA Construction Environment



**Cody Phillips**  
The NEXT Academy

I'm certain many of you reading this will agree that the construction industry is undergoing rapid transformation... driven by technological advancements, shifting market demands, and the ongoing need for sustainable practices. Nowhere is this change more evident than in the on-site power generation sector, where the demand for reliable, decentralized energy solutions is rising. For **EGSA stakeholders**, navigating this volatile, uncertain, complex, and ambiguous (VUCA) environment requires exceptional leadership.

#### Understanding the VUCA Environment

The concept of VUCA—Volatility, Uncertainty, Complexity, and Ambiguity—is ever-present in our curriculum at The NEXT Academy and it captures the nature of the modern construction environment. Each of these elements presents unique challenges for you and requires different tools in your leadership toolbox:

- **Volatility:** Market conditions change rapidly due to technological disruptions, regulatory shifts, and evolving customer needs.
- **Uncertainty:** The future of energy solutions, especially in on-site power generation, is unpredictable, making long-term planning difficult.
- **Complexity:** The interdependence of stakeholders, technologies, and processes adds layers of complexity that require careful navigation.
- **Ambiguity:** The lack of clarity regarding the best path forward can lead to confusion and hesitation, especially when dealing with innovative technologies and new market entrants.

For on-site power generation contributors, these VUCA factors are compounded by the critical role you play in ensuring reliable power supply—a task that is both essential and increasingly challenging in today's disrupted environment.

#### The Role of Leadership in VUCA

Effective and disruptive leadership is paramount in guiding organizations through the VUCA landscape. As leaders in the on-site power generation sector, you must be equipped to handle disruption while maintaining operational excellence. How can you do this? Well there's several key competencies to consider as you continue on your leadership journey:

##### 1. Visionary Thinking:

- Leaders must anticipate future trends and position their organizations to capitalize on emerging opportunities. For instance, a manufacturer might invest in new energy storage technologies, recognizing the growing demand for resilient power systems.
- A clear vision allows stakeholders across the value chain—whether distributor/dealers or consulting engineers—to align their efforts towards common goals, ensuring a cohesive approach to market challenges.

##### 2. Agility and Adaptability:

- The ability to pivot in response to changing circumstances is crucial. A contractor/integrator must be able to adjust project plans quickly when new technologies or regulatory requirements emerge.
- Leaders should foster a culture that embraces change, encouraging teams to experiment with new



approaches and learn from both successes and failures.

### 3. Collaboration and Communication:

- The complexity of on-site power generation projects requires close collaboration among various stakeholders. Effective leaders facilitate open communication channels, ensuring that information flows seamlessly between manufacturers, engineers, contractors, and end-users.
- Regular dialogue helps to align expectations, clarify roles, and mitigate risks, ultimately leading to more successful project outcomes.

### 4. Resilience and Emotional Intelligence:

- Leading in a VUCA environment requires resilience—the capacity to remain composed and effective under pressure. Leaders must demonstrate emotional intelligence, understanding their own responses to stress and recognizing the needs and concerns of their teams.
- In the on-site power generation sector, where disruptions can have significant operational and financial impacts, resilient leadership helps organizations weather challenges and emerge stronger.

## Leadership Across the Value Chain

Different stakeholders in the EGSA ecosystem face unique leadership challenges, but the need for strong leadership is universal:

- **Manufacturers:** Must lead innovation efforts, ensuring their products meet the evolving needs of the market. This involves investing in R&D, managing supply chain complexities, and anticipating future trends.
- **Distributor/Dealers:** Require leadership that can balance cus-

tomers needs with the realities of supply and demand, all while maintaining strong relationships with manufacturers and end-users.

- **Contractors/Integrators:** Need leaders who can manage complex projects, coordinate with various stakeholders, and deliver reliable power solutions on time and within budget.
- **Manufacturer's Representatives:** Serve as the bridge between manufacturers and the market, requiring leadership that understands both product capabilities and customer needs to drive sales and adoption.
- **Consulting & Specifying Engineers:** Provide expert guidance on system design and implementation, necessitating leadership that can stay ahead of technological developments and regulatory changes.
- **Service Firms:** Play a critical role in maintaining power systems, demanding leadership that ensures high standards of service and rapid response to issues.
- **End-Users:** Must be confident in their leadership's ability to make informed decisions about power generation solutions that meet their operational needs while remaining adaptable to future demands.

In today's VUCA, disrupted construction environment, leadership is not just a managerial function—it is a critical differentiator that can determine the success or failure of an organization. For those in the on-site power generation sector, effective leadership means being visionary, agile, collaborative, and resilient. As the industry continues to evolve, those who lead with purpose and adaptability will not only survive but thrive, driving innovation and ensuring reliable power for the future.

By embracing these leadership prin-

ciples, stakeholders across the on-site power generation value chain can navigate the complexities of the modern construction landscape, ultimately delivering the resilient energy solutions that our world increasingly relies on.

Don't miss the chance to enhance your leadership skills! Join one of our Four Unique Pathways at The NEXT Academy, a premier performance-based training provider in the construction industry! Let us help you GROW on your leadership journey. #BeNEXT ●

# MEMBERSHIP & MARKETING

## Using Chat GPT as your Ultimate Marketing Assistant



**Shana Duthie**

*Chair, Membership and  
Marketing Committee*  
Duthie Consulting  
Group

It did not take long for many marketers to realize the potential of using ChatGPT to help them with their daily tasks. Marketers in general are great collaborators and often work with others to create quality ideas, strategy and content. The only difference is with ChatGPT you are collaborating with an AI model that has a wide range of data from a variety of industries. The power in using any AI to assist you in your daily tasks lies in your prompts for asking for information or assistance from the AI. When we look at all the tasks that marketers need to do on a daily, weekly and monthly basis it is obvious how using AI can assist.

This is an AI generated list of items. I have reviewed it and agree with the AI model that this is a very comprehensive lists of tasks that marketers complete. When using AI as your assistant your need to review anything produced by AI as you would any other assistant.

**1. Blog Posts and Articles:** Generating ideas, drafting full posts, or creating outlines on various topics to maintain a consistent publishing schedule.

**2. Social Media Posts:** Crafting engaging posts, headlines, and captions tailored to different platforms (e.g., Instagram, Twitter, LinkedIn).

**3. Email Campaigns:** Writing compelling subject lines, body content, and call-to-actions for newsletters or promotional emails.

**4. Ad Copy:** Creating persuasive ad copy for digital advertisements across search engines and social media platforms.

**5. Product Descriptions:** Developing detailed and attractive descriptions for e-commerce websites to enhance product appeal.

**6. SEO Optimization:** Suggesting keywords, meta descriptions, and optimizing content to improve search engine rankings.

**7. Content Ideation:** Brainstorming new content ideas and topics based on trends, audience interests, and industry developments.

**8. Scripts for Videos and Podcasts:** Drafting scripts or outlines for promotional videos, explainer videos, and podcast episodes.

**9. Customer FAQs:** Creating comprehensive FAQs and support content to address common customer questions and concerns.

**10. Case Studies and White Papers:** Assisting in drafting and structuring detailed case studies and white papers to showcase expertise and success stories.

**11. Market Research Summaries:** Summarizing market research findings and trends into easily digestible reports or blog content.

**12. Interactive Content:** Generating content for quizzes, surveys, and other interactive elements to engage users.

**13. Brand Storytelling:** Crafting narratives that effectively convey

brand values, mission, and vision.

**14. Influencer Collaboration Content:** Drafting pitches and collaboration proposals for influencer marketing campaigns.

**15. Personalization:** Tailoring content for different customer segments based on their interests and behavior.

**16. Landing Pages:** Writing persuasive copy for landing pages to improve conversion rates.

**17. Training Materials:** Developing training content and materials for internal teams or customer onboarding.

**18. Press Releases:** Creating engaging and newsworthy press releases for company announcements and events.

**19. Surveys and Feedback Forms:** Crafting questions and prompts for surveys and feedback forms to gather customer insights.

**20. Visual Content Descriptions:** Writing descriptions and alt text for images and infographics to enhance accessibility and SEO.

Using ChatGPT to help with the types of tasks listed help marketing teams streamline their workload – create more and better consistent with consistency around the company brand and will leave your entire team more time to focus on strategy which is the core of great marketing.

Please note: Although this article focuses on using ChatGPT as your marketing assistant, there are other AI applications that can also be used. Many of them are already incorporated into many companies' tools and just may need to be activated to be accessed. Microsoft CoPilot is a good example of this. However, a separate subscription is required for each user. ●



Electrical Generating Systems Association (EGSA) is the world's largest organization exclusively dedicated to on-site power generation.

Bringing together industry professionals from all aspects of the generation industry – manufacturers, distributors/dealers, fuel services, testing equipment, end users etc., this network comes together to promote, educate, share best practices, and influence appropriate codes and standards for the safe application of onsite electrical power generation.

For over 50 years, EGSA has furthered the discussions that fuel our industry. Historically, we have focused on the combustion engine as the prime mover; we have expanded into solar, wind, and turbine engine prime movers as the need to support local demand and micro-grid technology has grown. Common applications are in back-up power situations for healthcare, government operations, military, financial institutions, and the expansion of data centers.

## Key Benefits of EGSA Membership:

- **Networking and Connection:** Dive into a world of connections and foster discussions with design engineers, manufacturers, distributors, and service providers at our annual Conferences.
- **Industry Influence:** Join our Committees and Task Forces for peer learning, networking, and leadership opportunities in the on-site power generation industry - leading and collaborating with the industry's best while advancing its interests.
- **Recognition and Visibility:** Use the EGSA logo to enhance your marketing initiatives. Plus, a complimentary member listing in the highly anticipated annual EGSA Buying Guide elevating your company's visibility in the industry.
- **Promotions and Discounts:** Enjoy substantial discounts on Events, Educational Resources, including the "On-Site Power Generation: A Reference Book" - the industry bible, and Job Bank Ads.

## EGSA Exclusives:

- **Apprentice and Journeyman Certifications:** EGSA Technician Certification is the industry standard for on-site power generation technician skill level and competency, offering two levels - Apprentice and Journeyman. This rigorous program evaluates technicians on their comprehensive understanding and proficiency in installation, service, maintenance, and repair of On-Site Power Generation systems.
- **Schools and Specialized Training:** Enrich your skills at our Rowley Schools of On-Site Power and Load Bank Schools. Choose from in-person, online, or experiential learning formats to fit your style. We're here to help take your professional journey to the next level.
- **EGSA Resources:** Stay ahead of the curve with our acclaimed publications like our quarterly "Powerline Magazine", reference materials, and essential glossaries and standards - all tools for our members to stay informed and innovative about the latest developments, insights, and trends in the on-site power generation industry.

## THE VOICE OF THE ON-SITE POWER INDUSTRY

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# DISTRIBUTED GENERATION

## Industry Insights: Harnessing A.I. for Intelligent Virtual Power Plants: The Future of Distributed Energy Resources



**Glen Spry**  
*President, SPRYTLY*  
*Executive Consulting*

As the energy sector rapidly evolves, the role of artificial intelligence (AI) in managing distributed energy resources (DERs) has never been more critical. A recent article by Utility Dive highlighted that 217 GW of new DERs are expected to come online by 2028, underscoring the urgent need for advanced technologies to coordinate these assets efficiently. This article delves into the potential of AI to aggregate and manage large fleets of DERs into intelligent Virtual Power Plants (VPPs), addressing the current immaturity of the VPP space and the need for rapid technological advancements.

### The Evolution of Virtual Power Plants

Virtual Power Plants represent a transformative approach to energy management. Unlike traditional power plants, VPPs do not rely on a single physical location. Instead, they aggregate numerous decentralized energy resources—such as solar panels, wind turbines, battery storage, and electric vehicles—into a cohesive and controllable entity. This aggregation allows VPPs to operate

as a unified power plant, capable of balancing supply and demand in real-time.

**AI: The Key to Intelligent Coordination:** The integration of AI into VPPs is a game-changer. AI algorithms can process vast amounts of data from various DERs, predict energy production and consumption patterns, and make real-time decisions to optimize performance. This capability is essential for managing the complexity and variability inherent in distributed energy systems.

**Current State and Challenges:** While the concept of VPPs is promising, the space remains relatively immature. Current VPP implementations often struggle with the scale and complexity of coordinating large fleets of DERs. Many existing systems lack the advanced control and coordination platforms needed to monitor and dispatch millions of assets efficiently. Additionally, interoperability issues between different technologies and standards pose significant challenges.

### AI-Enabled VPPs: How They Work

AI-enabled VPPs leverage sophisticated algorithms and machine learning models to manage distributed energy resources effectively. Here's how they work:

**Data Collection and Integration:** AI systems begin by collecting data from various DERs, including generation levels, storage capacity, weather forecasts, and grid conditions. This data is integrated into a central platform, where it can be analyzed and used to inform decision-making.

**Real-Time Monitoring and Control:** AI algorithms continuously monitor the performance of DERs, detecting anomalies and predicting future behavior. This real-time monitoring enables VPPs to respond swiftly to changes in grid conditions, such as spikes in demand or drops in supply.

**Optimization and Dispatch:** Using predictive analytics, AI systems optimize the operation of DERs to maximize efficiency and minimize costs. For instance, AI can schedule battery discharges during peak demand periods to reduce grid strain or prioritize renewable energy sources when available. This optimization extends to the dispatch of energy resources, ensuring that the right resources are used at the right time.

### Benefits of AI-Enabled VPPs:

- **Enhanced Grid Stability:** By balancing supply and demand in real-time, AI-enabled VPPs can enhance grid stability and reliability.
- **Cost Savings:** Optimizing the use of distributed resources can lead to significant cost savings for both utilities and consumers.
- **Increased Renewable Integration:** AI can prioritize the use of renewable energy sources, helping to reduce carbon emissions and support sustainability goals.

### Opportunities and Risks

The adoption of AI-enabled VPPs presents numerous opportunities, but also comes with risks that need to be managed carefully.

### Opportunities:

- **Scalability:** AI can handle the complexity and scale of managing millions of DERs, making it possible to integrate more distributed resources into the grid.
- **Flexibility:** AI-enabled VPPs can provide flexible, real-time responses to grid conditions, enhancing the overall resilience of the energy system.
- **Innovation:** The integration of AI with VPPs drives innovation in energy management, creating new business models and services.

### Risks:

- **Data Security:** The reliance on data for AI-enabled VPPs raises concerns about cybersecurity and data privacy. Ensuring robust security measures is essential.
- **Technological Integration:** Integrating various technologies and standards into a cohesive platform is challenging and requires significant investment in infrastructure.
- **Regulatory Hurdles:** The regulatory landscape for VPPs is still evolving. Navigating these regulations and ensuring compliance can be complex.

### The Path Forward: Rapid Technological Advancements

To realize the full potential of AI-enabled VPPs, rapid technological advancements are necessary. Here are key areas of focus:

**Advanced Control and Coordination Platforms:** Developing sophisticated control and coordination platforms is crucial for managing the scale and complexity of large fleets of DERs. These platforms should be capable of real-time data integration, monitoring, and optimization.

**Interoperability Standards:** Establishing interoperability standards is essential to ensure that different technologies and systems can work together seamlessly. Collaboration between industry stakeholders, technology providers, and regulatory bodies is key to developing these standards.

**Investment in AI Research:** Continued investment in AI research and development is necessary to enhance the capabilities of AI algorithms and machine learning models. This includes improving predictive accuracy, optimizing resource dispatch, and ensuring robust cybersecurity measures.

**Regulatory Support:** Policymakers and regulatory bodies must provide a supportive framework for the deployment of AI-enabled VPPs. This includes creating incentives for innovation, ensuring data privacy and security, and addressing potential market barriers.

### Actionable Insights for Corporate Executives

To successfully leverage AI-enabled VPPs, corporate executives should consider the following strategies:

**1. Invest in Advanced Technologies:** Prioritize investments in AI and machine learning technologies, as well as advanced control and coordination platforms. Evaluate potential return on investment and prioritize technologies that offer the greatest impact.

**2. Foster Industry Collaboration:** Collaborate with other industry stakeholders, including utilities, technology providers, and regulatory bodies. Working together to develop interoperability standards and best practices will facilitate the integration of VPPs.

**3. Focus on Data Security:** Ensure robust data security measures are

in place to protect sensitive information and maintain consumer trust. Invest in cybersecurity technologies and practices to mitigate risks.

**4. Advocate for Supportive Policies:** Engage with policymakers to advocate for regulations that support the deployment of AI-enabled VPPs. Highlight the benefits of VPPs in enhancing grid stability, reducing costs, and increasing renewable integration.

**5. Educate and Engage Stakeholders:** Raise awareness about the benefits of AI-enabled VPPs among employees, customers, and other stakeholders. Provide education and incentives to encourage participation and support for VPP initiatives.

The future of energy management lies in the integration of AI with Virtual Power Plants. As the energy landscape continues to evolve, AI-enabled VPPs offer a promising solution to the challenges of coordinating large fleets of distributed energy resources. By enhancing grid stability, reducing costs, and increasing renewable integration, these intelligent systems can drive the energy transition forward. However, realizing this potential requires rapid technological advancements, industry collaboration, and supportive regulatory frameworks. Corporate executives have a critical role to play in this transformation, driving the adoption of AI-enabled VPPs and shaping the future of energy management. By investing in advanced technologies, fostering collaboration, and advocating for supportive policies, businesses can unlock the full potential of VPPs and support the creation of a more resilient, efficient, and sustainable energy system. ●

# 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](http://egsa.org/Certification) to learn more about EGSA Technician Certification. ●



**aksa** POWER GENERATION

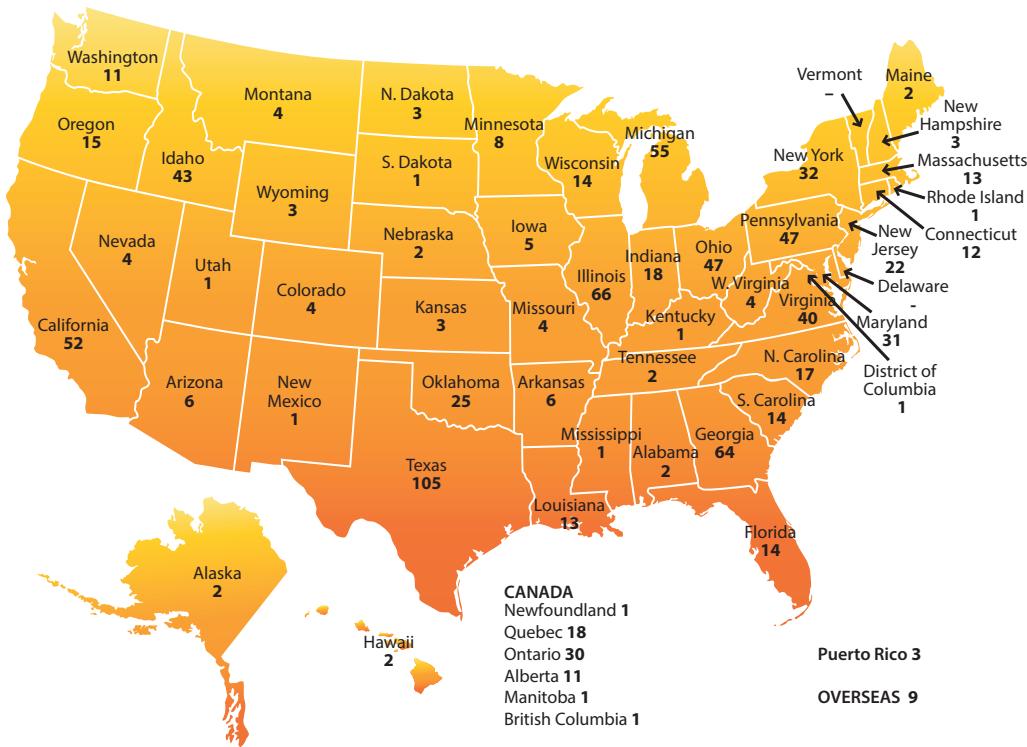
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## 916\* EGSA Certified Technicians



### 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).

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## A.I. and Onsite Power

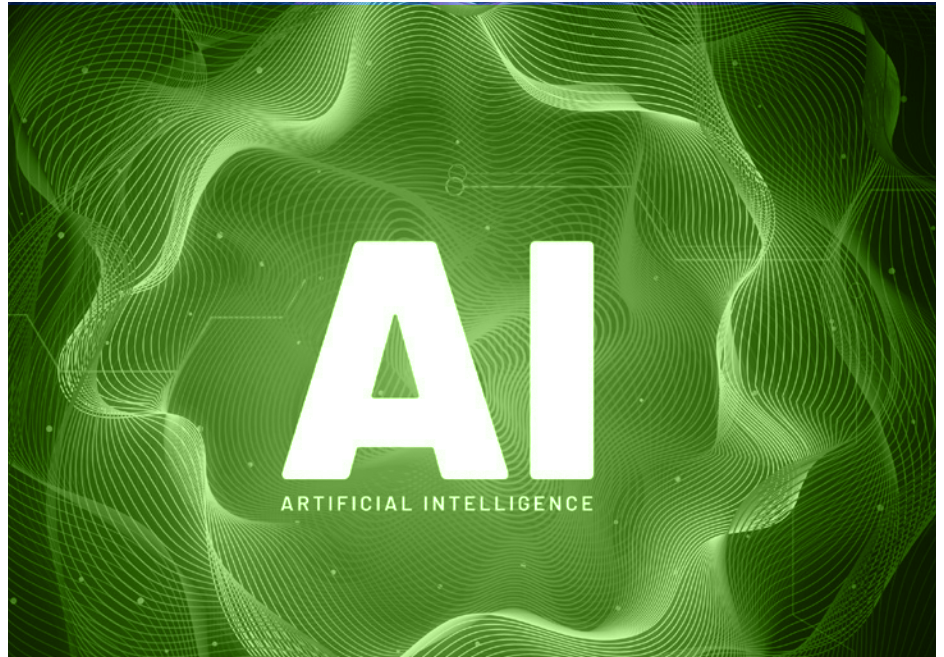


**Jake Stratton**  
*EGSA, Director of  
Technology and A.I.*

In our daily lives, “AI” has become a ubiquitous term. From smart home devices to predictive text on our phones, artificial intelligence influences our routines in numerous ways. But what exactly is AI? At its core, AI represents the capability of machines to perform tasks that typically require human intelligence. This encompasses a range of technologies, including machine learning, natural language processing (NLP), and computer vision, which allow machines to learn from data, understand human language, and interpret visual information, respectively. The rapid advancement of AI, particularly large language models (LLMs), has brought this technology to the forefront of innovation discussions.

### Why AI is Gaining Attention

AI’s increasing prominence can be attributed to significant advancements in technology, especially in the field of large language models. These models, such as GPT-4, have demonstrated remarkable capabilities in understanding and generating human-like text, powering applications from virtual assistants to sophisticated data analysis tools. The strides made in AI research and de-



velopment, along with the powerful computational capabilities of GPUs (Graphics Processing Units), have unlocked new potential, making AI a critical tool for businesses across various industries.

### General AI Applications

AI’s versatility allows it to be employed in a multitude of ways across different sectors. In healthcare, AI aids in diagnostic imaging and personalized treatment plans. In finance, it powers fraud detection and algorithmic trading. Retailers use AI for inventory management and personalized marketing, while manufacturers deploy AI for predictive maintenance and quality control. The ability to analyze vast amounts of data and predict outcomes has made AI indispensable in these fields.

### AI in the Onsite Power Industry

The onsite power industry is well positioned to adopt AI, leveraging its capabilities to optimize operations, enhance reliability, and drive innova-

tion. Here are a few select use cases:

- **Predictive Maintenance:** AI analyzes operational data from generators to predict potential failures, allowing for timely maintenance and avoiding costly downtime. This not only extends equipment life but also improves reliability.
- **Energy Output Optimization:** Through predictive analytics and real-time data processing, AI dynamically adjusts energy production, ensuring maximum efficiency and consistent energy supply.
- **Optimizing Logistics:** AI improves logistics by predicting supply and demand, optimizing delivery routes and managing inventory levels, ensuring timely delivery and reduced transportation costs.

### Current AI Applications Among EGSA Members

EGSA members are increasingly integrating AI into their operations to improve efficiency and reliability. Generac has implemented its Pow-



erInsights platform, which uses IoT and AI for geospatial visualization of generator installations. This system enhances their ability to analyze sales opportunities, engage with customers, and conduct predictive maintenance.

Cummins employs AI in their FiberRed technology, which monitors equipment performance across various departments, facilitating faster troubleshooting and more efficient maintenance planning.

Collicutt Energy Services uses AI-driven tools like Valogix layered on SAP for inventory planning, which helps in accurately forecasting demand and optimizing stock levels to minimize downtime. Additionally, they use Ontopical to identify potential sales leads by analyzing municipal data, and otio.ai to streamline the analysis of equipment manuals, thereby improving the efficiency of maintenance operations.

MSI Data has applied AI to the scheduling and routing of technicians, aiming to improve service delivery by optimizing these processes through

machine learning. These examples a few of the ways EGSA members are employing AI to address operational challenges and enhance their service capabilities.

### EGSA's AI Initiatives

EGSA is actively engaging members on how AI can be used in the industry. Here are some key initiatives:

- **Member Survey:** EGSA plans to conduct a comprehensive survey to understand how member organizations are currently utilizing AI. This will help in identifying best practices and areas for improvement.
- **Fall Conference Sessions:** The upcoming Fall Conference will feature sessions dedicated to AI, providing members with insights into the latest developments and practical applications of AI in the onsite power industry. (See page xx for more information.)
- **Task Force Activities:** The newly formed EGSA Artificial Intelligence and Onsite Power (AIOP) Task Force will continually ex-

plore new AI applications, develop guidelines, and provide resources to help members integrate AI into their operations.

### Get Involved

As AI continues to evolve, its impact on the onsite power industry will only grow. EGSA members have a unique opportunity to lead this transformation by embracing AI technologies. By joining the EGSA AI Task Force and attending the Fall Conference, members can stay ahead of the curve, learn from industry experts, and collaborate on innovative solutions. The future of onsite power is bright, and with AI, it promises to be more efficient, reliable, and innovative than ever before. ●

## 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](https://www.egsa.org/Careers.aspx).



# What are Battery Energy Storage Systems (BESS)?

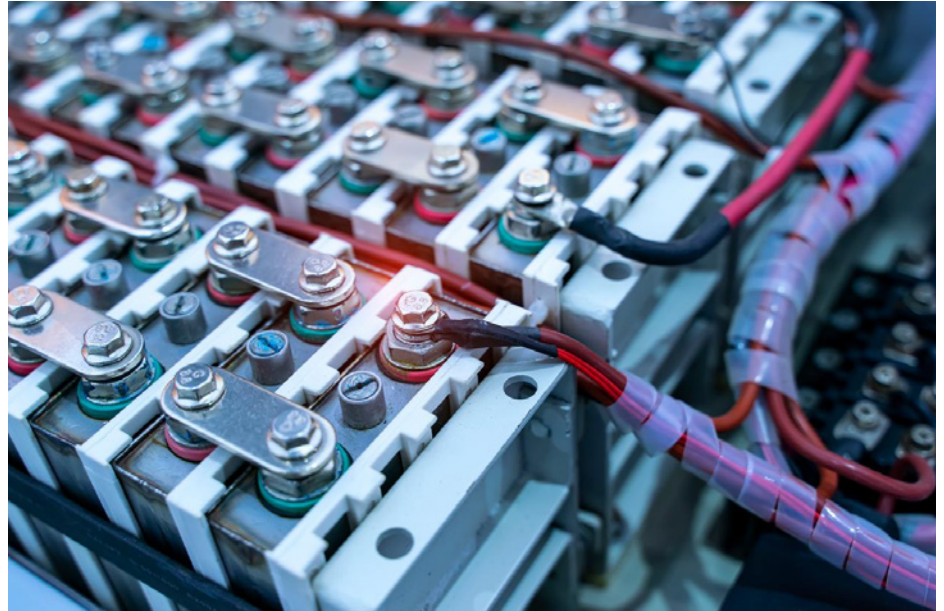
The electricity grid is the largest machine humanity has ever made. It operates on a supply-side model – the grid operates on a supply/demand model that attempts to balance supply with end load to maintain stability. When there isn't enough, the frequency and/or voltage drops or the supply **browns** or **blacks out**. These are bad moments that the grid works **hard** to avoid.

The electricity grid consists of a massive array of parts including:

1. Generators using hydro, thermal, nuclear, gas, oil, coal, solar, wind, tidal, and other power sources.
2. Step-up transformers to raise generated voltages to transmission line voltages.
3. Long transmission lines.
4. Step-down transformers (substations) to bring voltages down to local transmission levels.
5. Street transformers to deliver consumer-level voltages (240V, 110V, and 400V three phase).

What it does **not** traditionally have is any means to STORE electricity to match demand surges. This means that in a grid not equipped with BESS, any excess power generated must be dissipated in the grid. Generators must be kept spinning, ready to be connected the moment demand surges beyond the already connected supply – the “spinning reserve.” In a well-managed grid, the spinning reserve can be 15–30% of capacity to be ready for surges in demand. Battery energy storage systems are tools that address the supply/demand gap, storing excess power to deliver it when it is needed.

This article will discuss BESS, the



different types, how lithium batteries work, and its applications.

## The BESS Principle

Battery energy storage systems (BESS) are becoming pivotal in the revolution happening in how we stabilize the grid, integrate renewables, and generally store and utilize electrical energy. BESS operates by storing electrical energy in rechargeable reserves, which can later be discharged to power local or grid-scale demand. Perhaps most importantly, these battery-held reserves are ready to switch into grid supply quickly, as demand or frequency/voltage instability trigger them automatically.

Cummins' main target with BESS is behind-the-meter support and integration into in-front-of-the-meter grid operational support. This is relevant to both off-grid and on-grid applications, or local integration of renewables at a site, or power backup for unreliable grid connections.

While these storage systems require investment, they offer some enormous advantages that can represent overwhelming benefits. Chief among these is the speed of response. The battery reserves can usually be switched to grid-synchronized AC at astonishing speed – typically within a few cycles of the AC frequency (50–60 cycles per second or Hz). The highest price of electricity supplied to the grid is a fast-response supply, so the commercial value of the stored power can be 10 to 100 times the normal price.

The right battery technology offers long-term stable reserves – typical lithium-based battery technologies can hold high power levels for years, if necessary. Flow batteries can hold the power almost indefinitely.

## How does BESS work?

The energy storage begins at the charger system. This takes the “excess” AC grid or DC solar power and

conditions it to recharge the cells. This can be a fast charge or a slow charge, depending on the setup and the current available.

BESS systems can enhance local microgrid efficiency markedly, by time-shifting lower cost power and by smoothly integrating variable sources like solar, wind, etc, for close to full utilization of their output by time-shifting and buffering.

At the battery cell, most commonly one of the lithium types, energy is stored as electrochemical potential, which is supplied as DC potential difference – as opposed to the AC (alternating current) that the grid requires. The individual cells are the building blocks of battery packs, interconnected into packaged cell clusters called packs to build capacity, reliability, and enduring performance. Cells can be cylindrical, prismatic, or pouch construction.

Cylindrical types can allow better cooling circulation but offer lower packing density. Prismatic types stack close and optimize density. Pouch types can be used to conform to more irregular cavities and lacking the rigid enclosure tend to be lighter.

The battery packs are integrated into modules, which are supervised automatically for charge/discharge management, condition monitoring, and cooling. These modules balance performance, safety, and reliability at a granular and automated level, operating as an intermediary between individual cells and the high-level storage system control.

Multiple modules are aggregated and controlled within a containerized power storage solution. Typically termed energy storage units (ESUs) or battery energy storage systems (BESS), these house all necessary components, including:

**6. Power electronics:** Manage the

flow of energy in and out of the system, ensuring seamless integration with the electrical grid or standalone applications. This involves the use of inverters and power conversion modules to turn AC into DC to charge the battery AND phase- coupled inverters to return the DC-stored electrochemical potential to the grid as AC. Phase coupling ensures the AC is in-phase with the cycles of the grid connection, to deliver optimal power efficiency.

**7. Thermal management systems:** Regulate temperature to optimize battery performance and longevity.

**8. Safety mechanisms:** Mitigate risks such as overheating or overcharging and handle the rare emergencies that result from system faults.

It's worth noting that battery charging is NOT free. Typically, the recharge process is around 70–75% efficient. This means for 100 units of excess power available from the grid, the battery stack will uptake 70–75% to be returned as usable power later. The rest is lost as heat.

A steady flow of advances in battery chemistry and fundamental technology is combined with system design and control algorithm innovations. This is done to boost the efficiency, reliability, and budget challenges of BESS, shaping the future of the electricity grid, worldwide.

### What are the different types of BESS?

Operational and commercially available BESS setups come in various types, each with unique characteristics that are better suited to particular applications, environments, or operational differences. Although many technological details in the control and battery management systems (BMS) are different, at their core, BESS are classified by the nature of

the cell/battery systems they employ. The different types of BESS are listed below:

- 9. Lithium-based systems:** These encompass lithium-ion cobalt oxide (LiCoO<sub>2</sub>); lithium-ion nickel cobalt aluminum oxide (NCA); lithium-ion nickel manganese cobalt oxide (NMC); lithium-ion iron phosphate (LiFePO<sub>4</sub>); lithium titanate (LTO); and solid-state lithium-ion. Together these are the most common class of BESS due to their high energy density, long deep-cycle life, and relatively low maintenance requirements. They are versatile across all of the operational modes that BESS encounters.
- 10. Flow batteries:** Store energy in liquid electrolytes contained in external tanks. They benefit from scalability and long cycle life, making them optimal for large-scale permanently installed energy storage applications. Vanadium redox flow batteries (VRFBs), for example, offer very long duration storage and flexibility in power output.
- 11. Lead-acid batteries:** Have been used for energy storage for over 150 years and are appreciated for their low-cost robustness. Although they offer considerably lower energy density and shorter cycle life compared to more current technologies, they remain relevant for certain applications, such as backup UPS (uninterruptible power supply) power systems and smaller (typically domestic) off-grid installations.
- 12. Sodium-sulfur batteries:** Operate at high temperatures and use molten sodium and sulfur as power storage media. They can have high energy density and are well adapted to large-scale applications, such as grid stabilization and renewable/junk-power integration.
- 13. Supercapacitors (or ultracapacitors):** Store energy as elec-

trostatic charge and offer the highest possible charge and discharge ability. Although they (currently) have lower energy density than batteries, they excel in applications requiring frequent cycling, such as short-term ballast for smoothing out brief power fluctuations in microgrids.

## Pros and cons of battery types

BESS systems can use a variety of battery types with relative advantages and disadvantages that are worth considering. For example, Lithium Iron Phosphate (LFP) batteries offer longer term deep cycle durability than Lithium polymer (LiPo) and they are resistant to dendrite growth so they pose no fire risk. Their day-one capacity is a little lower than LiPo, but after a few hundred cycles they'll hold up better in capacity.

Nickel-Manganese-Cobalt (NMC) batteries, on the other hand, have a shorter deep cycle life expectancy than LFPs but they offer increased power density and considerably better cold weather performance, particularly in charging, which can reduce operating overheads.

It's for these reasons that NMC and LFP batteries are increasingly prevalent in BESS applications.

## How lithium batteries work

Lithium batteries function through electrochemical reactions involving lithium ions moving between the battery's positive (anode) and negative (cathode) electrodes, with material motion blocked by a separator that allows ion transport in the electrolyte. Lithium batteries typically contain a cathode (the +ve) formed from a lithium compound such as LiCoO<sub>2</sub>, NCA, NMC, LiFePO<sub>4</sub>, and LTO. These remain typical in the newer, solid-state embodiments.

An anode (the -ve) is usually made of

carbon (graphite or graphene). Coatings applied to the electrodes aid as barriers to the formation of dendrites, metallic threads that form on the surface of the electrodes and can pierce the separator and cause short circuits. These coatings include polymers or ceramics, depending on the manufacturer.

Between the electrodes there is typically:

**14. Electrolytes:** There are three classes of electrolytes used in lithium battery technology including:

- a. Liquid electrolyte: A lithium salt dissolved in an organic solvent, often containing flame-retardant additives. The lithium salt is the ionic conductor that transfers charge; the organic solvent delivers high ionic motility and the additives optimize the stability, conductivity, and safety of the electrolyte.
- b. Polymer-based gel electrolytes: They deliver high ionic conductivity but a much-reduced chance of leakage. The polymer matrix acts as a gelling agent and, by design, they don't pose a barrier to ionic motility within the solvent. The lithium salt acts in the same way, but gel-type cells offer improved battery safety and cycle life.
- c. Solid-state electrolytes: New alternatives to liquid electrolytes that improve safety and stability, acting as a barrier against dendrite formation and improving the thermal and chemical stability of the battery. This facilitates higher charge and discharge rates without increased risk.

**15. Separators:** Porous membrane structures that force a physical gap between the anode and cathode, while allowing lithium ions to pass through during charge and discharge. Separators are generally constructed from high-porosity polyethylene (PE),

often containing a polypropylene (PP) element to improve robustness.

During charging, lithium ions are electrically "pushed" from the positive electrode to the negative electrode through the electrolyte and become adsorbed onto/into the anode carbon. Electrons flow from anode to cathode in the outer circuit during charging. The charge current pushes electrons from anode to cathode. During discharge, these ions move back to the positive electrode, releasing electrical energy, and current flows in the outside circuit from cathode to anode. This ionic movement is greatly assisted by the crystalline structures within the electrode materials and energized by the flow of electrons through the external circuit in both charge and discharge.

The voltage and capacity of lithium batteries vary with the electrode/electrolyte chemistry and internal design, with voltages ranging from 3.6 V to 3.7 V per cell. Capacity relates to the amount of electrolyte and the size and construction of the electrodes. The discharge rate depends on many details and the internal safety systems in the cell and the battery. These prevent overcharging, over-discharging, and thermal runaway.

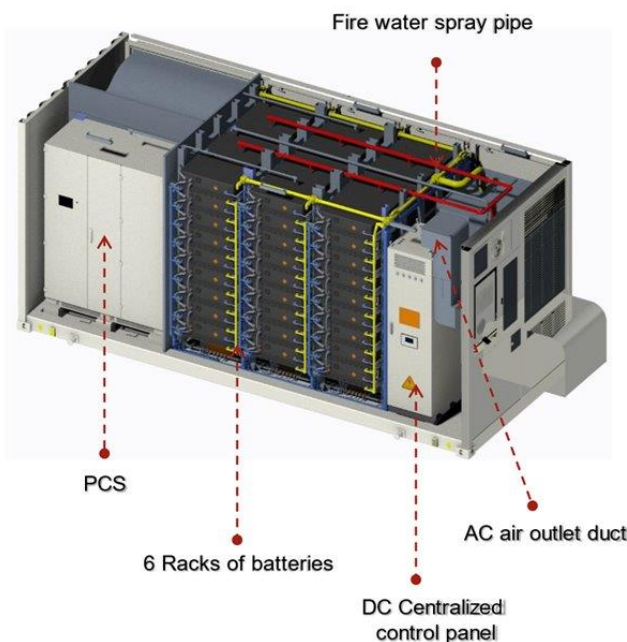
## Systems within a BESS

A battery energy storage system (BESS) is typically composed of the following:

Cell raw materials and construction  
Lithium-ion batteries are made in three basic forms – rigid cylindrical, rigid prismatic (square or rectangular section), and nonrigid pouch cells. The raw materials for all of these typically include:

- **Ionic lithium salts:** Allows motility of charge within the cell
- **Organic solvents:** Act as charge carriers to allow current to flow

**Figure 2:** Main Components of a Containerized BESS (Cummins Image)



between the electrodes. This can be liquid, gel, or solid depending on the battery technology.

- **Cobalt:** Used in cathodes for stability
- **Nickel, manganese, and aluminum in cathodes:** Used to reduce cobalt use
- **Graphite:** These are present in typical anode structures, but this is evolving towards silicon for higher capacity and robustness
- **Binders (typically polyvinylidene fluoride (PVDF), polyvinyl alcohol (PVA), carboxymethyl cellulose (CMC), or styrene-butadiene rubber (SBR)):** Integrates and toughens the electrode materials
- **Porous separators of PE and PP:** Isolate the electrodes and allow ion movement
- **Case materials – steel, aluminum, or polymer tubes (for cylindrical and prismatic cells), and heat-sealed polymer films for pouch cells:** The cell casing seals in the electrolyte and ensures electrical and physical isolation of the chemistry. In a few cases in which thermal isolation is paramount, ceramic cases can be

used – and in aerospace applications lightweight composites such as carbon fiber are used.

### Other components

A functioning BESS container system or installation also consists of the following:

- **BESS controller:** This system oversight runs power allocation, manages charging, and has operational oversight and safety control.
- **Structural frameworks and enclosures:** Used for housing and retaining battery modules
- **Battery management systems:** Monitor and control battery performance, ensuring safety and efficiency
- **HVAC cooling systems:** regulate temperature within the container, preventing overheating during high charge or discharge periods to enable optimal operation
- **Grid synchronized inverters:** Convert DC power from batteries into frequency- synchronized AC power for grid connection or other applications
- **AC to DC converters (rectifiers):** Deliver grid AC as battery-friendly

DC voltage for charging

- **Transformers:** Serve to raise or lower voltage levels to match grid or local system requirements
- **Cooling systems:** Many elements of a BESS setup require temperature control for good function
- **UPS:** The BESS system can operate as a high capacity uninterruptible power supply (UPS)
- **Fire suppression systems:** Detect and extinguish fires to safeguard the installation

### BESS applications

BESS installations fit a wide variety of applications across various sectors including:

16. Grid stabilization and frequency regulation result from fast response to sudden changes in demand or supply on the local (or wider) grid. This allows BESS installations to contribute to the stabilization of frequency and voltage by soaking up excess energy during periods of reduced demand (or oversupply) and releasing stored power during elevated demand.
17. Renewable energy integration requires the buffering of supply at its peak and the smoothed availability of power that results. BESS installations store the otherwise useless oversupply that is typical of solar and wind power. Smoothing out the destructive fluctuations in renewable energy removes the “junk power” effects of oversupply and disruption. This allows greater penetration of renewable energy into the grid that does not rely on thermal resources to compensate for brief (or longer) collapses in supply.
18. Peak shaving and load management are key BESS services that can reduce electricity costs by storing energy during off-peak hours when prices are low and

discharging it during peak hours when prices are high. This peak shaving helps to alleviate strain on the grid during periods of high demand and reduces the need for expensive peaking power plants. In distributed microgrids, this implies less fuel (diesel) will be required, and generator stress and maintenance costs will be lowered.

- 19. Microgrid support is similar to peak shaving, in that a BESS can provide backup power, load balancing, and grid support services. This enhances the reliability and resilience of microgrids, ensuring uninterrupted power supply and optimizing the use of renewable and thermal energy resources.
- 20. EV charging infrastructure is greatly enhanced by BESS, supporting the deployment of EVs by providing more responsive fast-charging capabilities and managing peak demand. The integration of large numbers of EVs into the

grid without overloading existing infrastructure is the greatest challenge that electricity networks face, and BESS is critical in managing peak demand safely.

- 21. BESS can provide uninterruptible power for critical industrial and commercial facilities, ensuring seamless operations during grid outages or blackouts and reducing electricity costs through agile demand response.
- 22. BESS can be installed in homes, making the behind-the-meter more effective/lower cost by storing excess energy from solar panels or during high-supply, low-demand hours, available for later use.
- 23. BESS can provide reliable power in remote or off-grid locations where access to the electrical grid is limited or unavailable. They are used in applications such as telecommunications, remote monitoring, and rural electrification projects.

### Why BESS is crucial for on-demand energy storage systems?

BESS plays an increasingly crucial role in self-healing, anti-fragile electricity grids. They help integrate renewable energy sources, improving energy efficiency and enhancing voltage/frequency reliability and overall system resilience.

Careful application of BESS removes the operational limit that otherwise applies to electricity grids in accommodating intermittent (solar, wind, tidal, wave) power sources that are otherwise considered junk power when oversupply happens. The spinning reserve requirement limits most grids to 15–25% intermittent sources. Whenever BESS acts as a buffer, however, this spinning reserve can be the BESS system, with no wasted energy. This versatile scalability makes BESS indispensable in the transition towards a more sustainable and resilient energy future. ●

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# MEET THE TEAM

## Meet the New Membership Experience Team



**Beth Helberg**  
*Executive Director of  
Membership Experience*



**Katherine Sims**  
*Coordinator of  
Membership Experience*

Introducing the new Membership Experience team—your go-to squad for everything membership! Whether you're a new member or an EGSA veteran, we've got you covered. From seamless conference coordination to dynamic marketing, and innovative business development, we're here to elevate the EGSA membership journey to new level.

### Meet the New Team

**Beth Helberg**, *Executive Director of Membership Experience*

With over two decades of dynamic experience, Beth has made her mark in local, state, national, and global membership organizations. Her career is a showcase of achievements in conference planning, membership recruitment, business development, sponsorship sales, marketing, communications, and team management.

Beth has orchestrated events from exclusive VIP gatherings to massive city-wide conferences with over 3,000 attendees. Her innovative marketing of membership benefits and development of retention programs have driven remarkable organizational growth. Now, under Beth's leadership, EGSA is set to soar—expanding our membership, showcasing our member benefits, and broadening our event horizons.

**Katherine Sims**, *Coordinator of Membership Experience*

Katherine is a versatile professional with a strong background in program management and customer relations. She has experience managing complex projects and coordinating communications across diverse teams. Katherine excels in problem-solving and organizational tasks, with a proven ability to enhance operational efficiency and drive successful outcomes. As an effective communicator with a solid foundation in communication and information sciences, she is skilled at fostering relationships and collaborating with stakeholders at all levels. Katherine is excited to work with EGSA's members. ●



EGSA is ready to welcome you to our 2024 Fall Conference in Bellevue, Washington.

The **Hyatt Regency Bellevue** is a luxury hotel located in the heart of downtown Bellevue, Washington. With its small-town charm and big-city convenience, Bellevue, Washington, is a modern oasis with endless activities and cultural attractions. Nine miles from downtown Seattle, Hyatt Regency Bellevue on Seattle's Eastside connects you to world-class shopping, dining, entertainment and major corporate headquarters. Visitors will also enjoy the natural beauty and scenery and the abundance of outdoor recreational activities nearby.



### 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.

### Keynote Speaker

**Sreedhar Sistu**

*Schneider Electric*

Sreedhar Sistu is the Vice President, AI Offers at Schneider Electric. He is a senior software product executive and leader with



extensive experience in product strategy and growth, portfolio planning, cloud architecture, DevOps, large-scale deployments, off-shore management and program management.

Sreedhar is currently working on applying artificial intelligence to address energy management, industrial automation and sustainability at scale leveraging a comprehensive platform approach. Responsibilities include end-to-end ownership of AI Offers, strategic planning, working with key customers and other stakeholders to define product roadmap, collaborating with solutions and technology teams to deliver products that meet and exceed these

needs, defining pricing, packaging and go-to-market messaging for these products, managing internal and external partner interactions for commercial success.

Sreedhar has spoken at several product forums on AI and its application to enterprise, energy and sustainability, and was hosted on several podcasts.

He is a Mechanical Engineer with Masters in Operations Research and Statistics from Indian Statistical Institute followed by MBA from Duke University.



## GENERAL SESSION

How can AI serve both innovation and sustainability? Join Sreedhar Sistu, VP AI Customer Offers, Schneider Electric, sharing how the company embraces AI at scale, embedding AI in its products, solutions, and services, with a focus on energy efficiency. Sharing real-life use cases, he will demonstrate how to put data and AI to work to reduce energy consumption and resulting GHG emissions, optimize energy demand, remove barriers to wider adoption of clean energy sources, and offer modern services experience.

## EDUCATIONAL SESSIONS

### SESSION #1: Energy Demands and AI Opportunities

**Presenter:** Jack Harris, *Director – Power Development, ANA Corp*

Hybrid energy systems offer several advantages for AI data centers. By combining renewable energy sources like energy storage and solar with traditional power sources, these systems can provide a more sustainable and reliable energy supply. This not only reduces the carbon footprint during the building of the data center but also ensures uninterrupted power availability once the AI data center is operational. This is crucial for AI systems' continuous operation.

AI is here on the near horizon on a very large scale. Companies are rushing to the forefront to get started now as the lead times to design, obtain generators, UPS systems, electrical/HVAC equipment and materials to build a large scale AI data center takes time.

### SESSION #2: Field Service Scheduling & Routing – Look What AI Can Do For You

**Presenter:** Steve Berry, *Product Manager, MSI Data*

A common pain of many service organization is scheduling work and routing technicians – but it doesn't have to be a pain! Let's talk about the general history of technician scheduling and routing, common ways this was previously accomplished and issues organizations faced. Over the years technology has come in to help with these critical tasks with many improvements seen and at your fingertips. We can talk through early and current state of modern scheduling and routing capabilities available today. Then let's move into how machine learning and AI are transforming the tasks of scheduling and routing. Critical service KPIs can be improved with proper scheduling and routing, learn about a few of them and how technology and AI are empowering service organizations to do better.

### SESSION #3: Shaken, Not Broken: Seismic Standards for Critical Onsite Power Generation

**Presenter:** Nate Deibler, *Pre Compliance*

This session will cover implementation of IBC 2024 Nonstructural Seismic Requirements for Today's Complex Buildings. We will discuss the following: Performance objectives for different seismic design categories and building types, force and displacement changes in IBC 2024 for systems, Special Seismic Certification requirements, application considerations, analysis allowances and methods for approving supports and attachments.

### SESSION #4: NFPA 70B 2023: Completely Changing All Power Systems Testing Procedures

**Presenter:** Kent McLemore, *Power Temp*

This presentation will discuss the impact of the three updated and now connected NEC 70-NFPA-70B-

OSHA 70E codes. The challenges are that the codes are written around all electrical, not just emergency power systems. The verbiage is not what our industry is used to seeing so deciphering and reading between the lines to make it clear a work in progress. This is still the biggest change I've seen to our industry in the 38 years since I've been in the business.

### SESSION #5: AI Operational Tools to Power Your Day: A Tutorial on the Most Popular (Current) Solutions

**Presenter:** Shana Duthie, *Principal Consultant, Duthie Consulting Group*

In this session the presenters will review three AI powered efficiency tools that can be used to optimize your workday. You will explore the fundamentals of crafting effective prompts to interact with AI models. You will learn how to structure prompts to elicit desired responses and maximize the capabilities of AI systems. This will be a hands-on learning experience, so it is suggested that you bring a tablet or laptop with internet connectivity.

### SESSION #6: Avoid the Shock: Demystifying OSHA for Electrical Generation Professionals

**Presenters:** Robert Rodriguez, *Ogletree Deakins*  
Karen Tynan, *Ogletree Deakins*

In this session, the speakers will provide a strong foundation of OSHA knowledge, including how the agency operates and conducts inspections, how the settlement process works, how to contest citations, and more. The speakers will delve into the unique OSHA challenges facing the electrical generation industry, including common citations, best practices for dealing with OSHA, and how to avoid the legal pitfalls.

>>>

### SESSION #7: Kinetic Power Packs

Presenter: Brandon Morales,  
*Collicutt Energy*

Integration and use of KPP's at vital medical/industrial/financial/technological sites such as banks, data centers, hospitals, etc. and how they provide uninterrupted, precise, energy even during outages. Ensuring simple AI/systems never experience loss of power. In this manner production never ceases, records are never lost, transaction details are secure.

generator technology in this comprehensive course. As industries increasingly rely on uninterrupted power sources, the integration of AI offers groundbreaking solutions for enhancing efficiency, reliability, and predictive maintenance in generator systems. Participants will gain practical insights into harnessing AI technologies. Additionally, the course will explore real-world case studies and industry best practices, providing attendees with actionable knowledge to implement AI-driven solutions in their organizations.

### SESSION #8: Using AI Applications Within Your Generator Business: Optimization and Automation

Presenter: Kate Stallings, *Kate Creative Media*

Explore the intersection of artificial intelligence (AI) and industrial

### 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/spring](http://www.egsa.org/spring). The Conference App is available for both Apple and Android devices, search for "EGSA Conferences" in the Apple Store or Google Play Store.



## Be a Part of Something Bigger!

EGSA unites OEMs, distributors, dealers, contractors, integrators, design professionals, service and maintenance companies, and customers from the onsite power generation industry for networking and education.

## Empower Your Team

EGSA membership is about professional and business development, enhancing your reputation while expanding your capabilities, opportunities, and sales.

### KEY BENEFITS:

- **Networking** – Connect with industry leaders through EGSA events and committees.
- **Education** – From classroom, online, and hybrid schools to customized technician trainings at your facilities for everyone from field service to office and management personnel.
- **Certification** – Apprentice and Journeyman-level testing and certification.
- **Exclusive Resources** – Powerline Magazine, EGSA Buying Guide, EGSA Knowledge Hub, sponsorship and promotional opportunities, and discounts on everything from EGSA products and services to office supplies, insurance, hotels, travel, and much more.

## NETWORKING EVENTS

### BOEING FACTORY TOUR



**Sunday, September 15**

**Time: 1:45pm - 4pm**

Explore the Boeing Everett Factory and get an exclusive behind-the-scenes peek at the 777 assembly line. During the 80-minute private guided tour in the world's largest factory, you'll witness airplane production up close, learn about the site's history, and discover its significance in the future of commercial aviation. Transportation is provided.

*Sponsored by PEG*

### LUCKY STRIKE LANES



**Monday, September 16**

**Time: 8pm - 10pm**

Bowling is a great way to socialize and inject some friendly competition. Have a blast bowling a few rounds, hang out at the pool tables, reminisce about the good old days with some arcade games, or simply unwind in the lounge. Let us know if you're interested in joining when registering for the Conference. Lucky Strike is conveniently located next to the hotel, making it a quick stroll from the evening's reception. Food and drinks will be provided. Come roll with us!

### GOLF TOURNAMENT



**Tuesday, September 17**

**Time: 12:00 - 5:30pm**

Enjoy 18-holes of golf at The Golf Club at Newcastle on the China Creek Course. The site's gently rolling terrain throughout the 6,632-yard course encompasses five par 3's, nine par 4's, and four par 5's but you can't find this view anywhere else. Transportation provided and rental clubs are available if needed at an additional fee. Tee times start at 12:30pm.

*Co-Sponsored by Mecc-Alte and Worldwide Power Products*

### WINE TASTING

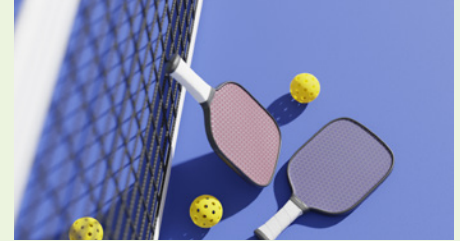


**Tuesday, September 17**

**Time: 12:20pm - 4:30pm**

Visit Washington's oldest and most acclaimed winery featuring award-winning wines at their historic Chateau located in Woodinville (a 30 minute drive from the hotel). Ste. Michelle is one of the few premium wineries in the world with two state-of-the-art wineries, one for white (made on site) and another for red (made at their Canoe Ridge Winery in eastern Washington). The tasting includes a sample of five wines – one sparkling, two white and two reds – along with a guided tour of the Manor House and Chateau which sits on 105 acres. Transportation provided.

### PICKLEBALL TOURNAMENT



**Tuesday, September 17**

**Time: 1pm - 4pm**

We welcome all levels of play in our third annual Pickleball Tournament. Enjoy the latest craze with the list of winners announced at the Closing Reception. Equipment and transportation to the Gorin Tennis Academy provided.

*Co-Sponsored by Hot Start and Mall Energy*

### JOINT BASE LEWIS-MCCHORD BASE TOUR



**Wednesday, September 18**

**Time: 8:00 am - 1:00 pm**

Calling all Veteran Task Force Members and EGSA members who are Veterans. An Employer Support of the Guard and Reserve (ESGR) event has been planned for Wednesday 18 - September 2024 at Joint Base Lewis-McChord.

The itinerary includes:

- Overview Communications
- Innovation Lab
- Control Tour
- Aircraft Maintenance
- Western Air Defense Sector

## ENGINEERING SYMPOSIUM SESSIONS

EGSA is pleased to announce that the Engineering Symposium is returning for the Fall 2024 Conference. Manufacturers from across the Onsite Power industry will be on hand to provide breakout sessions on various Engineering-related topics.

CEUs will be provided. We encourage you all to invite your MEP engineers and specialists to join us in Bellevue, WA September 15-17, 2024.

### Why Attend?

- This FREE\* (details below) educational program is designed to support consulting specifiers by bringing leading manufacturers and local distributors only to EGSA Fall to share what you need to know and why.
- Experts from the industry will share the stage to discuss and provide synergy regarding relevant Codes/Standards, best practices and emerging technologies.
- Networking specifically for consulting engineers to get direct access to these manufacturers and other leading distributor/dealers and service providers including an exhibition hall.
- **Manufacturers will be providing educational breakout sessions that offer CEUs/PDHs.**

*\*Registration is FREE only for End Users/Facilities Managers, and External MEPs/Consulting Engineers. Verification of professional credentials will be requested to ensure eligibility (\$1,850 VALUE). If you are NOT a End Users/Facilities Manager, and External MEP/Consulting Engineer (i.e, you are an Engineer with a member firm), no worries as you will be joining the other 300 plus industry attendees; please click here to register for Fall 2024!*

**3:15 pm – 4:00 pm**

### **SESSION #3: Data Center Design Architecture Schemes and Topologies**

**Presenter:** Jennifer Nekuda, *Engineering Solutions Manager, Kohler Energy*

Data Centers have been growing and evolving at a rapid pace. Designing for data center power generation needs has some unique application considerations. This course will break down common industry terminology the specifying engineer needs to know and provide solutions for the many challenges experienced when designing data center power systems. After this course, you will be able to: Identify data center backup power system design topologies, State the common accessories and component designs used in data center generators, Explain the difference between Tier 4 certified, Tier 4 compliant, and a Tier IV data center, Describe key factors that can impact high density generator yard layouts.

**4:15 pm – 5:00 pm**

### **SESSION #4: Standby Power Systems Design & Grounding of Emergency Power Systems**

**Presenter:** Joe Kendall, *Principal Consultant, Schneider Electric*

The session will discuss what is relevant for EC's, owners, and engineers alike. We will cover the fundamentals for standby power system design while also address commonly misunderstood concepts.

## TUESDAY, SEPT. 17

**9:15 am – 10:00 am**

### **SESSION #5: Embracing Digital for Enhanced Efficiency in Design**

**Presenter(s):** Daimon Bridge, *CEO,*

## BREAKOUT SESSIONS SCHEDULE

### MONDAY, SEPT. 16

**1:15 pm – 2:00 pm**

#### **Session #1: Artificial Intelligence, HPC and Accelerated Compute Hyperscale to the Edge**

**Presenter:** Vance Peterson, *Solution Architect, Schneider Electric*

This session will be a high level discussion of how the evolution of Artificial Intelligence, HPC and Accelerated Compute will change the fabric of Data Center infrastructure. We will cover GPU Based Accelerated Compute and its impacts on data center infrastructure, Infrastructure Impacts of Accelerated Compute

(Electrical + Mechanical), and the AI Landscape from Hyperscale to Edge.

**2:15 pm – 3:00 pm**

#### **SESSION #2: Equipotential Bonding and Grounding**

**Presenter:** Steve Sappington, *Product Safety and Compliance Specialist, Caterpillar, Inc.*

During this session we will discuss the basic "whys and hows" of an equipotentially bonded and grounded electrical distribution system. We will also be covering the "Bird On A Wire" condition, Four Fundamentals of an effective electrical connection, and the pros/cons of the earth's significance in an electrical distribution system.

## ENGINEERING SYMPOSIUM SESSIONS

*RIB Software*

Nick Boehm, *Senior Consultant of Electrical Engineering, WSP*

Jessica Navarro, *SVP, WSP*

Join us for an engaging fireside chat featuring Daimon Bridge, CEO of RIB, Nick Boehm, Senior Electrical Designer at WSP and Jessica Navarro, Senior Vice President at WSP, as they delve into the transformative impact of RIB SpecLink Cloud. In a world increasingly driven by AI and digital tools, this discussion will focus on how SpecLink Cloud exemplifies the digital innovation needed to drive significant efficiency and productivity in the construction

and design industry. This session will explore: the benefits of integrating digital tools like SpecLink Cloud into traditional workflows, Real-world examples of increased efficiency and collaboration, and the future of digital transformation in the construction and design sectors.

This session will provide an overview of paralleling generators on a single bus. We will discuss the different reasons for paralleling. The different methods will also be discussed. Finally, we will share possible issues that may come into play when paralleling generators.

**10:15 am – 11:00 am**

**SESSION #6: Paralleling Generators to include Controversial Topics in Power Systems Designs**

**Presenter:** Larry Blaine, *ASCO Power Technologies*

## EGSA By The Numbers



**97%** of EGSA Conference attendees report that EGSA conferences met or **EXCEEDED EXPECTATIONS**



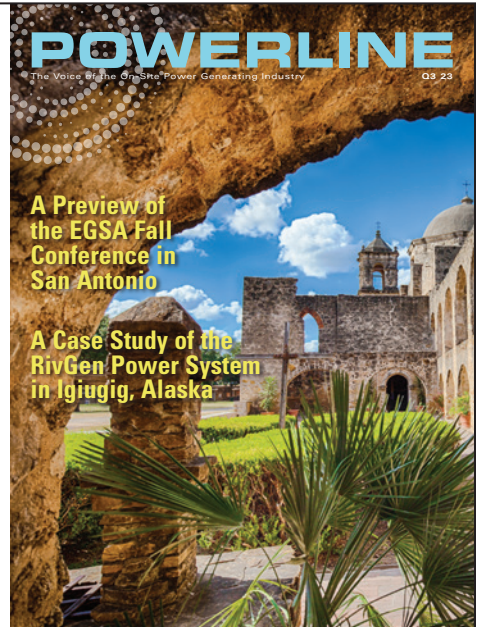
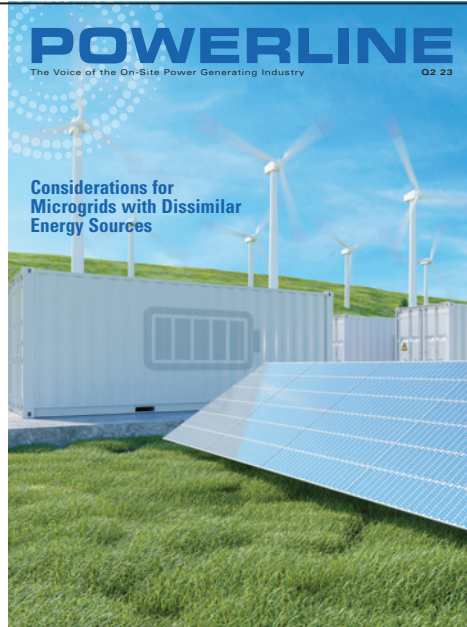
**OVER 90%** of EGSA members **RECOMMEND** EGSA to another company



**The Voice of the On-Site Power Industry**



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To view previous editions of *Powerline Magazine* visit [www.egsa.org/publications](http://www.egsa.org/publications)

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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.

### 2024 BASIC SCHOOL SCHEDULE

*San Antonio, TX:* September 30-October 2

*Virtual:* October 28-30

*Virtual:* December 9-11

### Basic School Topics:

- Basic Electricity & Prime Movers
- Understanding Generators/ Alternators
- Starting Systems
- Generator Components (Automatic Voltage Regulators, Governors, Instrumentation)
- Generator System Protection
- Transfer Switches
- Load Bank Fundamentals
- 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 ADVANCED SCHOOL SCHEDULE

*Virtual:* August 26-29

*Virtual:* November 4-7

### 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 CERTIFICATION

EGSA's Load Bank Certification is a 2.5-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.

### 2024 LOAD BANK CERTIFICATION

*Owings, MD:* October 15-17

*Long Beach, CA:* November 19-21

### Load Bank Certification 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





### 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

October 28-30

December 9-11

### Virtual Advanced School

August 26-29

November 4-7

### 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.





# EGSA Membership Classification and Dues

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.

| FULL MEMBERSHIP   |   |               |                |               |
|---|---|---------------|----------------|---------------|
| These Full Memberships categories are for corporations and their memberships cover all employees of the company.      |   |               |                |               |
| MEMBERSHIP CATEGORY   | CATEGORY DESCRIPTION  | ANNUAL DUES   | INITIATION FEE | TOTAL DUE     |
| <b>MF</b> <b>Manufacturer Membership</b>  | Any corporation seeking membership must apply for a full membership as a manufacturer if they meet one or more of the following criteria:<br>1. They manufacture prime movers for power generation.<br>2. They manufacture generators or other power conversion devices producing electricity.<br>3. They manufacture switchgear or electrical control devices.<br>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. | <b>\$1354</b> | \$257          | <b>\$1611</b> |
| <b>DD</b> <b>Distributor/Dealer Membership</b>  | Any corporation actively engaged as a distributor or dealer for products listed under manufacturers, Section 1, Paragraph a., may apply for full membership as a Distributor/Dealer. If an organization qualifies as a manufacturer under Section 1, Paragraph a., it is not qualified under this section.  | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>CI</b> <b>Contractor/Integrator Membership</b>   | Any corporation actively engaged as a Contractor or Equipment Integrator of products listed under manufacturers, Section 1, Paragraph a., not brand by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product, may apply for full membership. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.  | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>MR</b> <b>Manufacturer's Representative Membership</b>   | Any corporation actively engaged in the representation of products listed under manufacturers, Section 1, Paragraph a., may apply for full membership as a Manufacturer's Representative. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.  | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>SMTR</b> <b>Service, Maintenance, Monitoring, Testing, and Repair Companies Membership</b>                         | Any corporation engaged in the service and maintenance, or monitoring, testing, or repair of products listed under Section 1, Paragraph a., may apply for full membership. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.   | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>RC</b> <b>Rental Companies Membership</b>  | Any corporation actively engaged in the rent or lease of products listed under manufacturers, Section 1, Paragraph a., may apply for full membership as a Manufacturer's Representative. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.   | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>UIE</b> <b>Utilities, IPPs, and Energy Services Companies Membership</b>   | Any public or private corporation engaged in energy generation and/or management, including public and private utilities, Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for full membership. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.   | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| <b>CSE</b> <b>Consulting Specifying Engineer Membership</b>   | Any consulting specifying engineering firm may apply for full membership. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.  | <b>\$508</b>  | \$128          | <b>\$636</b>  |
| ASSOCIATE MEMBERSHIP  |   |               |                |               |
| These Associate Memberships categories are for corporations and their memberships cover all employees of the company. |   |               |                |               |
| MEMBERSHIP CATEGORY   | CATEGORY DESCRIPTION  | ANNUAL DUES   | INITIATION FEE | TOTAL DUE     |
| <b>EU</b> <b>End-User Membership</b>  | Any corporate or other public or private organization that purchases, owns, or operates, electrical generating equipment and/or related switchgear or components may apply for associate membership. If an organization qualifies under Section 1, Paragraph a, or b, it is not qualified under this section.   | <b>\$347</b>  | \$128          | <b>\$475</b>  |
| <b>EIGN</b> <b>Educational Institution, Government, and Nonprofit Membership</b>                                      | Any school, university, postsecondary vocational-technical school or college, unit of federal, state, or local government, or nonprofit organization may apply for associate membership.  | <b>\$347</b>  | \$128          | <b>\$475</b>  |
| <b>PS</b> <b>Professional Services Firm</b>   | Any professional services firm or other service-related organizations that do not exclusively service the electrical generating industry such as accounting, legal, financial services, communications, etc. may apply for associate membership.  | <b>\$347</b>  | \$128          | <b>\$475</b>  |
| <b>IND</b> <b>Individual Membership</b>   | Any individual who was previously employed in the on-site power generation industry but is no longer actively employed in the industry.   | <b>\$142</b>  | FREE           | <b>\$142</b>  |
| <b>MIL</b> <b>Military Membership</b>   | Any individual who is currently enlisted may apply for membership within this category. Proof of military engagement is required by either current Military ID card.  | <b>\$84</b>   | N/A            | <b>\$84</b>   |
| <b>RET</b> <b>Retiree Membership</b>  | Any individual who retires from a member company may apply for Associate Membership. This classification does not apply to any individual who is employed more than 20 hours per week.  | FREE          | FREE           | <b>\$0</b>    |
| <b>STU</b> <b>Student Membership</b>  | Any individual currently enrolled at an academic institution may apply for Associate Membership. This classification does not apply to any individual who is employed more than 20 hours per week   | FREE          | FREE           | <b>\$0</b>    |

## Application via Website

Visit the EGSA Website: [www.egsa.org](http://www.egsa.org).

**Create an Account:** On the EGSA website, locate the membership page and follow the guide to apply for membership. This process will involve creating an account on **MyEGSA**.

**Set Up Your Organization's Profile:** After creating your account, you will need to set up your organization's profile. Ensure all the necessary details are accurately filled in to avoid delays in your application process.

**Review Process:** Within two business days, the EGSA staff will verify the application details, conduct research on your organization, and assign the appropriate Membership Type based on your organization's qualifications and interests.

**Congratulations on taking the first step towards becoming a member of the EGSA community!** If you have any questions or need assistance during the application process, please do not hesitate to contact us at [info@egsa.org](mailto:info@egsa.org).



## Organization Information

Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_  
Branches \_\_\_\_\_  
Official Representative \_\_\_\_\_ Title \_\_\_\_\_  
Representative's E-Mail \_\_\_\_\_ Company's Web Address \_\_\_\_\_  
Organization's LinkedIn Page \_\_\_\_\_ Instagram Handle \_\_\_\_\_ Facebook Page \_\_\_\_\_  
Organization Description \_\_\_\_\_

Does the Organization employ EGSA technicians?  Yes  No  
How did you hear about EGSA?  Website  Powerline magazine  Colleague  PowerGen  Social Media  Internet Search  Other \_\_\_\_\_  
Why are you joining EGSA?  Certification Program  CEU Program  Power Schools  Buying Guide Listing  Networking  Committees  Other \_\_\_\_\_

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

### FULL MEMBERSHIP

- MF** Manufacturer Membership
- DD** Distributor/Dealer Membership
- CI** Contractor/Integrator Membership
- MR** Manufacturer's Representative Membership
- SMTR** Service, Maintenance, Monitoring, Testing, and Repair Companies Membership
- RC** Rental Companies Membership
- UIE** Utilities, IPPs, and Energy Services Companies Membership
- UIE** Consulting Specifying Engineer Membership

### ASSOCIATE MEMBERSHIP

- EU** End-User
- EIGN** Educational Institution, Government, and Nonprofit
- PS** Professional Services Firm
- MIL** Military Membership
- STU** Student Membership
- RET** Retiree Membership
- IND** Individual Membership

## Organization Demographics

This information is for internal EGSA purposes only. It does not appear in the *EGSA Buying Guide* or the Member Directory.

Number of Employees:  1-20  20-100  100-500  500+  
Annual Revenue:  \$0-\$500k  \$500k-1.5M  \$1.5M-\$2.5M  \$2.5M-\$5M  
 \$5M-\$10M  \$10M-\$20M  \$20M-\$50M  \$50M-\$100M  \$100M-\$1B

## EGSA Buying Guide Listing Info

|                                     | Sells                    | Rents                    | Services                 |   | Sells                    | Rents                    | Services                 |   | Sells                    | Rents                    | Services                 |
|-------------------------------------|--------------------------|--------------------------|--------------------------|---|--------------------------|--------------------------|--------------------------|---|--------------------------|--------------------------|--------------------------|
| Batteries/Battery Chargers          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Generator Laminations                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Silencers/Exhaust Systems/Noise Abatement | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Control/Annunciator Systems         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Generator Sets                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Solenoids                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Education                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Generators/Alternators                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Switchgear and Transfer Switches          |                          |                          |                          |
| Emission Control Equipment          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Governors                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | (Automatic or Manual), Bypass Iso-lation  |                          |                          |                          |
| Enclosures, Generator Set           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Heat Recovery Systems                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Switches, and/or Switchgear Panels        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Engines, Diesel or Gas              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Instruments and controls, including meters, |                          |                          |                          | Trailers, Generator Set                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Engines, Gas Turbine                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | gauges, relays, contactors, or switches     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Transformers                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Engine Starters/Starting Aids       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Load Banks                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Uninterruptible Power Supplies            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Filters, Lube Oil, Fuel or Air      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Motor Generator Sets                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Vibration Isolators                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fuel Cells                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Radiator/Heat Exchangers                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Voltage Regulators                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fuel Tanks and Fuel Storage Systems | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Relays, Protective or Synchronizing         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Wiring Devices or Receptacles             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

*For Distributor/Dealers, Manufacturer's Representatives and Contractor/Integrators Only*—List the manufacturers that your organization represents, deals or integrates:

*For Manufacturers Only*—List your organization's Representatives, Distributors and Contractor/Integrators:

**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 \_\_\_\_\_

## Official Representative's Authorization

Signature \_\_\_\_\_ Date \_\_\_\_\_

For any EGSA Membership questions, please contact us at [info@egsa.org](mailto:info@egsa.org).

**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 \$ \_\_\_\_\_**

## Payment Method

Payment is prorated based on the membership start date, covering the remainder of the calendar year. Following acceptance of your application, EGSA Staff will reach out directly with detailed instructions for completing your payment. We appreciate your interest and look forward to your membership.

# 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!***

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For more information on building a customized advertising plan, please contact

Marc Charon  
m.charon@egsa.org  
561-750-5575

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](mailto:n.harris@EGSA.org).

# POWERLINE

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

**Electrical Generating Systems Association (EGSA)**

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## 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

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

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



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](http://EGSA.org) for additional details on the EGSA George Rowley School of On-Site Power Generation.



**2024 SCHEDULE**

**BASIC SCHOOL**

- September 30-October 2.....San Antonio, TX
- October 28-30..... Virtual
- December 9-11 ..... Virtual

**ADVANCED SCHOOL**

- August 26-29 ..... Virtual
- November 4-7 ..... Virtual

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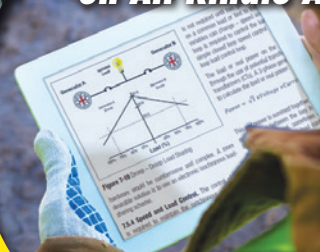
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