



Welcome!

**IEEE Phoenix Tech Conference
Expo**

December 8, 2023, 8 am

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IEEE Phoenix Tech Conference and Expo December 8, 2023, Phoenix Arizona – Speaker Line up

07:00 am Breakfast Buffet

07:35 am IEEE Announcements, Kickoff of the Conference – Opening Statements

07:45 am Keynote Speaker

08:10 am Matthew Thompson, VP Systems Engineering, Zap Energy, The Sheared-Flow-Stabilized Z-Pinch

08:35 am Taisha Bezzo Battery Energy Storage Grid Resiliency Director, Energy Storage Solutions, Concentric

09:00 am Joy E. Seitz, Visionary and CEO at American Solar Roofing

09:25 am Trudie Wang, VP of Innovations at Heila Technologies

09:50 am Steve Turner, Technical Leader and Protection Pioneer, Arizona Public Service Electric Utility, APS

10:15 am Vincent Mirolli, Private Capital Inflows to the Space Industry, CisLunar Experience

10:40 am Biju Cherian PE, Project Manager- Medium Voltage, North Texas Municipal Water District

11:05 am Justin Lenoff, Clarke Energy, Advance EMS Microgrid

11:30 am Hamed Mojahed, Senior R&D Manager Siemens Healthineers, 'Revolutionizing MRI with AI'

11:55 am IEEE Prize Pack Give Away – Special Guest

12:05 pm Phoenix Style Buffet Lunch

12:30 pm Bob Frankson, IEEE Fellow Distinguished Lecturer IEEE Consumer Technology

12:55 pm Curtis Ashton, Director of Training American Power Systems EastPenn, NPFA 70E Major Changes

1:20 pm Jennifer Potter, Director Strategen Consulting, Lahaina Hi, Maui Wildfires

1:45 pm Katherine Jerald, Aerospace, Satellite & Defense Elray Search Director

2:10 pm Jim Dodenoff, Principal Silent Running

2:35 pm Joanne Richardson, Gailwinds Group LLC, 'Digital Room Controls'

3:00 pm Dan Robles, Founder at CoEngineers, PLLC, 'The Ingenesist Project: An Invisible Economy'

3:00 pm Tuyet-Trang Lam, Founder at CoEngineers, PLLC, 'The Ingenesist Project: An Invisible Economy'

3:25 pm Mark Bowling, Infrared Scanning IRISS

3:50 pm Jeff Donato, Sales Director Safety Products H2Scan, 'Hydrogen Monitoring and Code'

4:15 pm Andrew Kelly, Miniature Implantable Medical Devices, Cirtec Engineering Director

4:40 pm Mac Wodicker, ASU Laboratory Energy Power Solutions

5:05 pm Dave Guevara, 'Generative AI in Your Work: Don't ask "if", rather when and how', Complaxion.

5:30 pm Henry Aribisala, Engineering and Renewable Energy leader, Director of Engineering Operations

5:55 pm Mansoor Khan, Integrated implementation of VPP and VPL concepts to system

6:20 pm Lloyd Gordon, 'Rapidly Evolving Electrical Worker Safety Standards for New Technologies'

6:45 pm Lucretia Lee-Arceneaux, 'Tech Equity and the Digital Divide', iHeart Media

7:10 pm Aswin Sivakumar, Design Considerations for low power sensor systems.

7:35 pm Naga Simhadri Apparao Polireddi, Chat-Box

8:00 pm Salute to the Speakers – Thank You! – Special Guest

8:25 pm Happy Hour 1st round of drinks by Consultant Network Seattle

08:10 am Matthew Thompson, The Sheared-Flow-Stabilized Z-Pinch Approach to Fusion Energy



The sheared flow stabilized (SFS) Z-pinch concept is on a path to commercialization at Zap Energy. Recent experiments on the Fusion Z-pinch Experiment (FuZE) device corroborate expected plasma stability and thermonuclear fusion reaction rates. Experimental campaigns are underway to increase the pinch current, the stable plasma duration, and DD fusion neutron production. The next generation device FuZE-Q is currently undergoing commissioning and will begin operation at current levels where scientific breakeven-equivalent conditions are expected soon. The Z-pinch configuration offers the promise of a compact fusion device owing to its simple geometry, unity beta, and absence of external magnetic field coils. In addition to a robust experimental program pushing plasma performance towards breakeven conditions, Zap

Energy has parallel programs developing power handling systems suitable for future power plants. Technologies under development include high-average-power repetitive pulsed-power, high-duty-cycle cathodes, and liquid metal wall systems.

Matthew C. Thompson is Vice President of Systems Engineering at Zap Energy. He leads a 45-person division tasked with developing fusion power plant technologies including repetitive pulsed power, liquid metal walls, and durable electrodes. Dr. Thompson received his BS in physics from Stanford Univ., and his MS and PhD in experimental plasma physics are from UCLA. He has worked at Lawrence Livermore National Laboratory, TAE Technologies, and BAE Systems. Dr. Thompson is a Fellow of the American Physical Society (APS), past Chair of the APS Forum on Industrial and Applied Physics, and a past Chair of the APS Committee on Careers and Professional Development. He has also mentored dozens of STEM students and co-founded a major mentoring program called IMPact. Matthew writes about career issues for physical scientists and is the author of *The Effective Resume: A Concise Guide to Compelling STEM Resume Construction and CV Conversion*.

<https://www.linkedin.com/in/drmatthewthompson/>

8:35 am Taisha Bezzo Battery Energy Storage Grid Resiliency Director, Energy Storage Solutions, Concentric.



Battery energy storage plays a pivotal role in enhancing grid resiliency and stability while fostering a decentralized approach to power distribution. By storing excess energy during periods of low demand and releasing it during peak usage, batteries contribute to a more balanced grid, reducing strain during high-demand times. This flexibility enhances the grid's ability to adapt to fluctuations, minimizing the risk of blackouts and ensuring a reliable power supply. Additionally, battery storage facilitates the integration of renewable energy sources, such as solar and wind, by mitigating the intermittency of these sources. This, in turn, empowers utilities to embrace a decentralized model, where local communities can generate and store their energy, promoting sustainability and self-sufficiency.

Overall, battery energy storage emerges as a cornerstone technology in fortifying grid resilience, fostering stability, and supporting the evolution toward decentralized and reliable power systems.

Taisha Bezzo

Taisha Bezzo, an accomplished professional, holds an MBA from Harvard Business School and brings over 14 years of expertise in sales, with a primary focus on the Utility and C&I sector. The latter part of her career has been dedicated to the dynamic realm of battery energy storage and microgrids, where she collaborates with utility program managers and electrical engineers across municipalities, cooperatives, investor-owned utilities (IOUs), developers, EPC contractors and business owners nationwide. In the sphere of microgrids and use cases for Battery Energy Storage, Taisha excels in helping customers define and implement large-scale turnkey programs, with a special emphasis on advancing grid stabilization and resiliency. Her strategic vision extends to close collaboration with the utility sales channel, engaging with key partners to drive innovation in battery energy storage solutions. Taisha Bezzo's commitment to excellence places her at the forefront of transformative initiatives, shaping the future of utility services and contributing significantly to the evolving landscape of sustainable energy solutions.

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Visionary & CEO at American Solar & Roofing

Joy E. Seitz

From the boardroom to the construction site, a hard hat and heels are not a contradiction for Joy Seitz, CEO of American Solar & Roofing. Just as solar and other technologies are reinventing the way energy is harnessed and used, Joy is reinventing and pushing against the “old way” of doing business in roofing and solar. Joy is the Visionary of the company, holding the responsibility of guiding what tomorrow should bring, what has been done in the past, and what culture will link the two. Her experience with venture capital made her understand the need to focus on other industries that help drive the renewable energy industry. From artificial intelligence and zero-day viruses to the media and climate change, no subject is off the table when Joy contemplates the future of energy and business. Bringing it back to the office, Joy is dedicated to creating a lasting culture in her company. She has committed time and resources to executive coaching for herself and leadership. She interviews her vendors to ensure they align with the company core values and she understands she votes with her dollar. Last, when given an opportunity she will always stop to talk to the craftspeople who are on rooftops every day. Her love for craftspeople who build America, solar electric systems, or roofs, is seen when she talks with them. And her focus doesn’t stop, Joy is a dedicated advocate at the local and state levels for renewable choices that are cost-effective for the consumer. She is also a prominent voice within the industry advocating for the proper training, safety and treatment of tradespeople and her entire team. She believes this not only ensures the company team finds value in their chosen career path but takes pride into elevating the skills and craftsmanship they deliver toward superior installations of roofing and solar technologies, leading to delighted customers and partners. As a native of Arizona, Joy is committed to building quality relationships with those who call the state home and seeks to make it an enticing place to live and work. She brings her decades of experience in marketing, business, and policy, supported by a degree in Global Business and Finance from Arizona State University.

<https://www.linkedin.com/in/joyeseitz/>



Trudie Wang is a seasoned engineer with over a decade of experience in developing and analyzing distributed energy technologies that push towards a more intelligent power system running on renewable resources. My experience translates across the domains of algorithm creation, software development, product architecture and market design, helping reimagine a distributed energy system that is built up of microgrids and virtual power plants (VPPs) which empower edge resources to play more proactive roles at the distribution level of our networks. I am singularly mission driven with an infectious enthusiasm and unbridled passion that is coupled with a knack for communicating this energy to motivate and lead teams to reach ambitiously disruptive goals. On a more personal note, my dogged pursuit of technologies which endeavor to promote environmental sustainability and social equity are an integral part of my identity. My entire life has been dedicated towards working passionately and diligently for the development of such technologies and I am constantly in pursuit of innovative and inspiring ideas that will take us there. My primary focus is on the sustainable and democratized use of our resources to minimize humanity's carbon footprint on this planet while ensuring the definition of distributed and renewable generation of energy does not discriminate based on class or category.

<https://www.linkedin.com/in/trudie/>

09:50 am Steve Turner, Technical Leader and Protection Pioneer, APS 'Postmortem Analysis Sync Generator'



Postmortem Analysis of Catastrophic Syncing a Large Combustion Turbine Generator - APS unsuccessfully attempted to synch a large combustion generator to their system, which failed. The voltage across the generator breaker was 180 degrees out of phase when it was closed due to bad sync. This resulted in tripping of the yard breakers and the other generator at that power block. It was then decided to attempt another close due to perceived urgency to restore auxiliary power. The second attempt resulted in massive failure of the GSU due to an evolving fault in the low voltage winding and a ground fault developed on the combustion turbine generator stator winding.

Steve Turner oversees system protection for the Generation Department, including renewables, at Arizona Public Service Company in Phoenix. Steve is also the subject matter expert regarding numerical protection for the Palo Verde nuclear power station as well. Steve previously worked as a consultant for two years, and held positions at Beckwith Electric Company, GEC Alstom, SEL, and Duke Energy, where he developed the first patent for double-ended fault location on overhead high-voltage transmission lines and oversaw maintenance standards in the transmission department for protective relaying. Steve has BSEE and MSEE degrees from Virginia Tech University. Steve is an IEEE Senior Member and a member of the IEEE PSRC and has presented at numerous conferences.

<https://www.linkedin.com/in/steve-turner-technical-leader-and-protection-pioneer-5144724/>

10:15 am Vincent Mirolli, Private Capital Inflows to the Space Industry, CisLunar Experience



Vincent Mirolli addresses a legislative approach to augment private capital inflows to the Space industry, emphasizing the role of government incentives and policies to develop a robust CisLunar Economy. He offers insights into historic legislation that spurred economic growth in nascent industries and demonstrates a framework to catalyze an industrialized space economy. The presentation underscores the importance of government initiatives in reducing investment risks and bolstering the financial appeal of space ventures. Leveraging his expertise in finance, business development, and space industry analysis, Mirolli presents a novel perspective to finance the growing space industry and de-Risk its primary challenges. Vincent demonstrates the effects a single legislative act would have to spur technological development, enhance national security, and bolster the middle class with highly skilled tradesmen.

Vincent Mirolli is an empathetic, driven, Christ-Centered, Space professional, who is constantly seeking incremental improvements toward my dream of an industrialized Space economy. He leverages his passion for space, his ears for listening, and the internet to distribute; a space podcast of candid conversations with space founders and thought leaders. His group demystifies the space jargon and cut through the PR BS to make space accessible to any listener. In January 2022 he made the leap out of the corporate world and began creating his business with a focus on telling the stories of brilliant men and women who have gone before me in the space industry. On our Podcast we host Founders, Engineers, Executives, Academics, Authors, Military members, and Policy Makers within the space industry. Vincent prides himself on his willingness to accept responsibility for his many failures and the few successes along the way. At all times, he is eager for the advice and wisdom of his seniors. He has an insatiable appetite for specific knowledge involving anything space and can often be found reading, or intensely listening to colleagues to further my understanding.

<https://www.linkedin.com/in/vincentmirolli/>



Key considerations when selecting Medium Voltage ASD for Water/Wastewater applications.

Regional Water –wastewater uses Medium Voltage power system for its high-capacity equipment. In this talk we discuss the challenges and key considerations when selecting the most reliable MV VSD for such applications. We will also discuss the various options to be more economical on the associated peripheral system- cooling.

Biju Cherian - With over 30 years of experience in the MEP industry, Biju Cherian is a Professional Engineer and Project Manager at North Texas Municipal Water District (NTMWD), a regional water, wastewater, and solid waste district serving over 2 million people in 14 cities. He holds a B Tech in Electrical Engineering and a Professional Engineer License from the state of Texas. As the sole Electrical Engineer for medium voltage power systems at NTMWD, he manages the entire project lifecycle, from design consultancy selection, design review, cost study, value engineering, bidding, tender finalization, claim management, material submittal review, shop drawings review, to project management. As a former Senior Director of a leading MEP consultancy in the Middle East, he has delivered innovative design solutions for complex Engineering challenges in power systems, power quality assessments, lighting, communication, and security systems. Mr. Cherian has successfully completed over 500 projects for prestigious clients in the Middle East and the US, including Emirates Flight Catering, Dubai International Airport, Katara Hospitality & Dubai Airport Free zone. Biju is passionate about advancing in the field of engineering and contributing to the sustainable development of the communities he serves.

<https://www.linkedin.com/in/biju-cherian-pe-smieeee-02a19616/>



When do you need an advanced EMS for your microgrid? The world is facing a difficult trilemma. Our need for power is growing, but at the same time we need to cut carbon emissions to combat climate change and set the course towards a sustainable future. Hybrid power solutions can solve this trilemma, letting you reduce emissions and manage costs without putting reliability and safety on the line. However, hybrid energy assets can create a difficult challenge from a controls perspective when used in tandem. This is where a sophisticated Energy Management System (EMS). Some traditional microgrids may not require this level of sophistication, while others do. When do you need an advanced EMS with forecasting? When can SCADA (Supervisory Control and Data Acquisition) and/or PLC (Programmable Logic Controller) be used instead of an EMS? Can you add an EMS to an existing SCADA/PLC system? What are the pros and cons of each? These topics and more will be discussed.

Justin Lenoff is an accomplished manager proficient in beginning to end (product development), including total ownership of a product from inception to customer delivery. Over a decade of experience leading 10+ member teams, setting visions, goals, managing budgets. Vast experience with lithium-ion batteries, automation, Allen Bradley PLCs, quality standards and improvement, battery modeling, cost modeling, nonlinear optimization for cost and performance models.

<https://www.linkedin.com/in/jklenoff/>



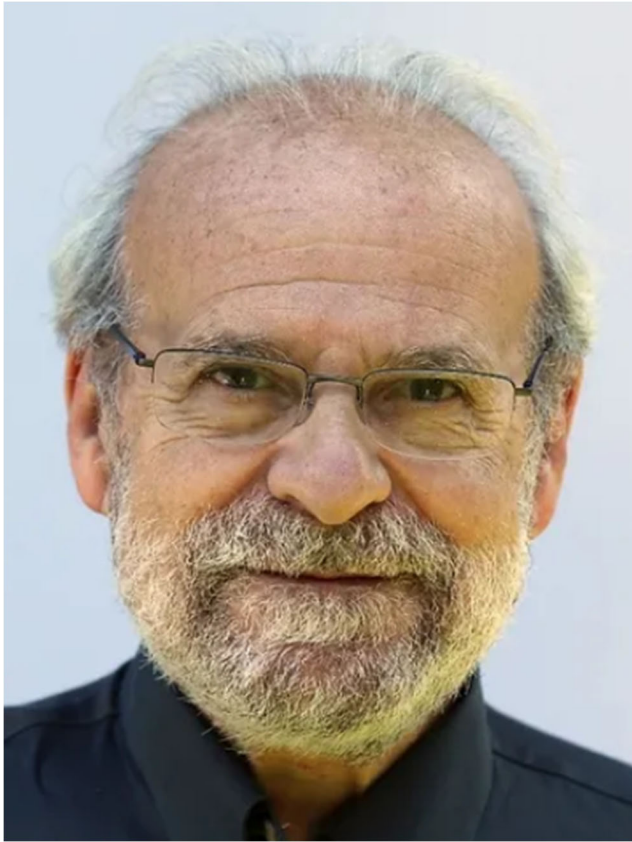
Today, more than ever, access to healthcare should be available to all, but barriers exist that limit the reach and quality of care: patient groups can diverge from the norm, infrastructure constraints can limit accessibility, and clinical applications cannot always be offered. For MRI, these barriers may seem prohibitive, but if we dare to question the status quo, pursue new avenues, and apply AI, we can break down barriers and expand the reach of MRI. In this talk, I will cover the revolutionary Siemens MAGNETOM Free. Max MRI scanners and demonstrate practical examples of AI applied in image reconstruction.

Dr. Hamed Mojahed, a Senior MR R&D Collaborations Manager at Siemens Healthineers, is a driving force behind cutting-edge innovations in medical imaging. With a deep devotion to high-tech and problem-solving, Hamed has led transformative projects in collaboration with prestigious hospitals and research universities, consistently pushing the boundaries of MR technology. His extensive experience includes serving at major medical technology companies in the US and Europe and holding leadership roles in startups. Hamed holds a Ph.D. in Biomedical Engineering from Columbia University and continues to be at the forefront of innovation, driving positive change in healthcare.

<https://www.linkedin.com/in/youcanrememberit/>

11:55 am IEEE Prize Pack Give Away – Special Guest

12:05 pm Phoenix Style Buffet Lunch



Bob Frankson is an IEEE Fellow and Distinguished Lecturer at IEEE Consumer Technology Society.

<https://www.linkedin.com/in/bobfrankston/>



NEC® 2023 Interesting Changes

This presentation will briefly cover some of the changes/additions made in the 2023 National Electrical Code® (NFPA 70) that stood out to this Electrical Engineer and Master/Journeyman Electrician.

Curtis Ashton is a 1992 B.S.E.E. summa cum laude graduate of Arizona State University, who started his career with Salt River Project (SRP) at an electrical generating plant, and then moved on to the telecommunications and data center industry for over 2 decades. For almost 5 years he has been employed by a DC services (installation and maintenance) subsidiary of East Penn manufacturing (Deka batteries) as their training director. Mr. Ashton has been an IEEE member for over 30 years, is a senior member, and has been nominated for promotion to IEEE fellow. He is a past chair of the IEEE PES ESSB (Energy Storage and Stationary Battery) committee, and continues to serve as working group chair, vice-chair and/or primary technical author for many IEEE standards, including the joint IEEE 1635 / ASHRAE 21 standard referenced by the NEC and the Fire Codes for battery room ventilation. Curtis is also a contributing member of IEEE IAS, and previously served as vice-president of the Inteltec Executive Committee (now IEEE PELS TC7) and served a term on IEEE-SA RevCom (Standards Association review committee). He is also a former vice-chair for ATIS-STEP and was the principal author of several ANSI standards on power, grounding, batteries, energy efficiency, and electrical protection. Mr. Ashton has also been an NFPA member for almost 30 years, and presently serves on the NFPA 855 (installation of energy storage systems) committee, where he heads several task groups and participates on many more. He is the technical committee chair for the annual Battcon stationary battery users conference, and has authored numerous peer-reviewed published papers, along with presenting at many locations around the globe. Curtis is a Master Electrician in Colorado and a Journeyman in New Mexico. In his free time, he enjoys practicing his Spanish fluency with other Spanish speakers and referees high school basketball and soccer.

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Navigating the Storm: Strategies for Enhancing Grid Resiliency. Incorporating cutting-edge technologies and establishing intelligent microgrids are essential to elevate grid flexibility and resilience. The presentation of real-world cases of distributed generation will offer attendees a comprehensive insight into the framework for assessing the value of resiliency and the deployment of innovative energy solutions, both in preparation for and in the aftermath of climate-related events and crises.

Jennifer Potter serves as Director of Regulatory Innovation at Strategen Consulting. Prior to joining Strategen, Jennifer was appointed to the Hawaii Public Utilities Commission by Governor Ige in March 2018. Jennifer was previously a faculty member at the Hawaii Natural Energy Institute (HNEI). Prior to joining HNEI, Jennifer was a Sr. Scientific Engineering Associate at Lawrence Berkeley National Laboratory. Jennifer is an experienced analyst and project manager, dedicated to data-driven decision making and solutions to improve efficiency and effectiveness. Jennifer has spent 17 years in the electric utility industry in a variety of roles. Jennifer specializes in energy policy and legislation, electric pricing pilots, consumer behavior analytics, statistical modeling and forecasting, customer and generation energy profiling and analysis, and cost-benefit and financial analysis.

<https://www.linkedin.com/in/jenniferpotter3/>

1:45 pm Katherine Jerald, Aerospace, Satellite & Defense Elray Search Director



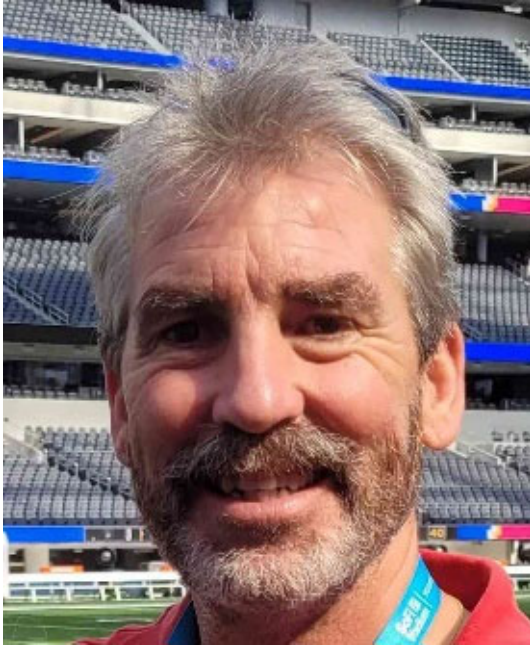
Join Katherine at IEEE as she discusses strategies for attracting the next generation of IEEE members, emphasizing diversity and inclusion in shaping the aerospace, satellite, and defense industries' future. Katherine is a second-generation recruiter passionate about talent acquisition in aerospace, satellite, and defense. With a Business degree from University of Oregon and an MBA from Washington State University, she excelled at FPC Portland, earning five-time recognition as their top performer. In 2022, Katherine founded Elray Search, specializing in executive recruitment with a commitment to gender diversity—50% of the executives she places are women. Active in prestigious organizations like SSPI, Leading Ladies of Aerospace, NDIA, and Women in Defense, Katherine fosters diversity. As a Pinnacle Society member, she speaks at IEEE, sharing innovative strategies for attracting new and diverse talent and emphasizing inclusion in shaping future members. Katherine's expertise extends to podcasts,

including Resilient Recruiter and The Pinnacle Take, solidifying her as a thought leader in recruitment.

Meet **Katherine Jerald**, a second-generation recruiter. Katherine's passion for recruitment began at an early age when she helped her father set up computers for his newly opened recruiting firm, and her enthusiasm for the industry has only grown stronger over the years. After completing her bachelor's degree in business from the University of Oregon in 2004, Katherine continued her education and earned an MBA in Finance from Washington State University in 2015. She then rejoined her father's search firm, FPC Portland, as an executive recruiter and went on to open an FPC office in Lake Chelan, Washington. Katherine specializes in defense, satellite, and aerospace technologies, and her expertise in these fields has been crucial in helping her clients find the best talent in the industry. Katherine's hard work and dedication have earned her numerous accolades throughout her career. During her tenure at FPC, she was consistently one of the top producing recruiters in the FPC system and was the five-time winner of FPC's top recruiter award. In 2022, Katherine launched her own search firm, Elray Search, LLC, which is committed to solving the biggest talent needs of middle-market clients in the aerospace, satellite, and defense industries. Passionate about the aerospace, satellite, and defense industries, Katherine is an active member of several organizations that support these fields. She is a member of the Space & Satellite Professionals International (SSPI), Leading Ladies of Aerospace, National Defense Industrial Association (NDIA) and Women in Defense. As a member of the Pinnacle Society, Katherine regularly speaks at conferences and on podcasts, where she shares her insights and expertise with other top recruiters and industry leaders. Overall, Katherine is a talented and passionate recruiter who is committed to helping her clients find the best talent in A&D. Her dedication to her work and her involvement in the community have earned her a well-deserved reputation as one of the top recruiters in the field, and her membership in the Pinnacle Society is a testament to her success and expertise.

<https://www.linkedin.com/in/katherinejerald/>

2:10 pm James Dodenoff, Principal Silent Running Community Solar Projects: The Push to Service



Community Solar Projects: The Push to Service Low Income and Communities of Concern

Community Solar Projects, some combined with Energy Storage, continue to be an important growth area in renewable energy. Dozens of states in the U.S. now have unique Community Solar programs that seek to connect renewable energy with multi-family and/or low-income residents many of whom reside in communities of concern. Jim will provide an overview of state specific programs throughout the U.S. and highlight what is working and what is not. He will also provide guidance and tools for potential developers regarding how to identify attractive project sites and the challenges and opportunities for enlisting end-use customers in the

uptake of electricity produced by these projects.

James Dodenhoff's firm, Silent Running Energy, guides clients through the most recent technology developments, regulatory guidelines, and finance solutions to provide optimal sustainability and energy solutions. Jim's experience includes serving as Regional Business Development Director for S&C Electric's Microgrid Control System, Project Development for California's Community Solar Green Tariff Program, advisor to investors for the Oregon Community Solar Program, Working Group member for the CPUC Energy Efficiency Compensation, Diversity, Equity, and Inclusion (CDEI), and Working Group member for the CPUC Energy Efficiency Equity and Market Support Working Group (EMSWG). Jim has an M.B.A. in Strategy/Finance from the UCLA Anderson Graduate School of Management and a Bachelor of Science degree in Energy Studies/Mechanical Engineering from Brown University.

<https://www.linkedin.com/in/jimdodenhoff/>

2:35 pm Joanne Richardson, Gailwinds Group LLC, 'Digital Room Controls'



Effective application of digital room controls for Hospitality, Assisted living, Commercial space, and Higher Education. Uncovering the truth of digital room controls to save upwards of 40% energy savings. A long overlooked effective path of long-term energy savings that is typically value engineered out of most Greenbuild projects because of initial cost. Renovation after this fact can almost double the costs of installing digital controls in private spaces. ASHRAE and other standards are not clearcut on the need for digital intelligence in this area and can have many interpretations. Let us explore a few case studies of room controls proven energy savings that pay for themselves in under 3 years while offering your customers total control of their space while present and tactics of savings when the space is empty. This is a space where the mentality of if it is not broken why change? Digital

controls take the human element out of many costly misconceptions and mistakes. These mistakes cost owners millions over a lifetime of wasted energy.

Joanne Richardson is a global Hospitality HVAC, IIOT Consulting, Author, Inspirational Speaker, Published writer. With a thorough understanding of IOT digital software solutions to create compelling ROI projects; she also has years of knowledge in commercial/industrial HVAC applications to apply a holistic view of the building. Practical high-level expertise in aligning HVAC and Building Controls to impact long-term engineering ESM's goals. Project development, management, design, and implementation. Strong knowledge of OEM HVAC and digital building technology sales of MEP projects, platforms, and ESM growth strategies. Passion, urgency, and competence in all phases of project design and development from cradle to grave. Visionary that can see the task at hand to orchestrate the result before project conception begins. Industry insider that knows the nuances of assimilating a stellar SOW in contract negotiations with OEM's and re-sellers. With an understanding of building trades including holistic building envelope, MEP designs, electrical, mechanical, HVAC, indoor air-quality, water treatment and industry standards compliance. More than 20 years working for Global 100 fortune companies in top tier sales and global team lead in the MEP, OEM, IIOT engineering community. Led teams for York International, Daikin, UTC, Honeywell & Schneider Electric working with C-Suite clients across the globe. With 100's of MEP projects, digital building controls and electrical platforms, Joanne is very versatile in design development pulling from her impressive background of successful project outcomes. In-depth understanding of practical solution placement & SOW development to positively impact change. Fiercely loyal and direct truthfulness in keeping it real and not going down rabbit-holes when approaching project development, desired expectations, or unrealistic outcomes when difficulties arise. Expertise in training, mentoring, and maturing young engineering sales teams to achieve high-level sales. Joanne will compliment all teams of decision makers to achieve desired goals and is a graceful, seasoned professional.

<https://www.linkedin.com/in/joannegrichardson/>

3:00 pm Dan Robles, Founder at CoEngineers, PLLC, 'The Ingenesist Project: An Invisible Economy'



The Next Economic Paradigm.

Nobel Laureate Dr. Robert Solow calculated that 80% of economic growth can be attributed to the contributions of engineers, scientists, and technologists. But GDP measures products, not people. Unfortunately, intangible assets are treated as expenses to be minimized, not investments to be maximized. This tiny accounting error may be responsible for a vast majority of the systemic risk that is strangling the world. The Ingenesist Project is

developing a novel application of Game Theory, Blockchain, and Artificial Intelligence with the goal of directly measuring the contribution of Engineers, Scientists, and technologists in an economy as a tangible asset. The implications of this project would change the nature of money itself without disrupting the institutions upon which civilization depends.

Dan Robles, PE, MBA is the owner of CoEngineers, PLLC, and Director of the Ingenesist Project. Coengineers is a consultancy that serves domestic and international clients related to mechanical engineering systems, feasibility analysis, and expert witness services. The Ingenesist Project is a research platform specializing in applications of blockchain technology specific to the engineering profession. Dan has 35 years' experience in industry on projects such as the US Space Shuttle, military and commercial aircraft and satellites. Dan has crossed over into the construction industry specializing in failures in plumbing, hydraulic, and mechanical systems. He has founded several companies and is currently aggregating resources to build The Innovation bank. He resides in Edmonds, WA.

<https://www.linkedin.com/in/ingenesist/>

3:00 pm Tuyet-Trang Lam, Founder at CoEngineers, PLLC, 'The Ingenesist Project: An Invisible Economy'



The Next Economic Paradigm.

Nobel Laureate Dr. Robert Solow calculated that 80% of economic growth can be attributed to the contributions of engineers, scientists, and technologists. But GDP measures products, not people. Unfortunately, intangible assets are treated as expenses to be minimized, not investments to be maximized. This tiny accounting error may be responsible for a vast majority of the systemic risk that is strangling the world. The Ingenesist Project is developing a novel application of Game Theory, Blockchain, and Artificial Intelligence with the goal of directly measuring the contribution of Engineers, Scientists, and technologists in an economy as a tangible asset. The implications of this project would change the nature of money itself without disrupting the institutions upon which civilization depends.

Tuyet-Trang Lam received the engineering degree in electrical engineering from ENSIEG—Institute National Polytechnique de Grenoble, France, in 1997, M.S. and Ph.D. degrees in electrical engineering from the Arizona State University in 1999 and 2006, respectively. She worked at Intel, Chandler, AZ for 16 years in HW and SW validation of video codecs, video processing for Intel GPU and AI SW architecture for Intel VPU and Xeon products. Her research interests are in image, video compression and Artificial Intelligence. From 1997 to 1999, she was a graduate Research Assistant in the Signal and Image Processing Laboratory of the Telecommunication Research Center, Arizona State University, Tempe. She was involved in software development, image compression algorithms and application of Neural Networks to Multiconductor Transmission Lines modeling. From 1999 to 2001, she was a Software Engineer in the Telecommunication Business Unit of the Motorola Computer Group. In 2001, she was a Faculty Research Associate in the Electrical Engineering Department, ASU.

<https://www.linkedin.com/in/tuyet-trang-snow-lam/>

3:25 am Mark Bowling, Infrared Scanning IRISS



The overview that we're going to cover in this webinar is an introduction of the company, arc flash and electrical fire statistics specifically in the US, and equipment failure patterns and how that plays into the importance of condition-based maintenance and monitoring techniques. OSHA and NFPA 70E and what they say when it comes to electrical maintenance and safety in this concept of hierarchy of control. The types and usage of electrical maintenance safety devices we'll talk about the standards relating to infrared window construction which are still predominant EMSDs devices that are used today and questions and answers.

Mark Bowling is the Business Development Manager for the Northwest US/Canada for IRISS Inc. based in Bradenton, Florida. IRISS designs and manufactures Electrical Safety Maintenance Devices (EMSD's) to ensure that qualified personnel can perform equipment maintenance inspections safely and efficiently. IRISS' goal is to help their clients protect their People, Profits and Equipment. Mark has over 25 years of customer service and sales experience and is a certified Level II Thermographer and Level I certified in Ultrasound.

<https://www.linkedin.com/in/mark-bowling-504152102/>



A primer on the Codes and Standards governing Battery Safety and Compliance including hydrogen monitoring.

Jeff Donato has been an active member of the IEEE PE/ESSB - Energy Storage & Stationary Battery Committee for some time and is currently the chair of WG 1578. Jeff previously worked for Enviroguard as their CTO and CMO before joining H2scan in 2022. Jeff is well versed in the “Codes and Standards Governing Battery Safety and Compliance.”

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4:15 pm Andrew Kelly, Miniature Implantable Medical Devices, Cirtec Engineering Director



A new generation of Miniature Implantable Medical Devices (MIMDs) promises to revolutionize the medical device industry. Thanks to advances in micro-electro-mechanical systems (MEMS), integrated passive devices (IPDs), solid-state batteries (SSBs), and advanced electronics packaging technologies, coupled with some creative custom integrated circuit (IC) design, these new devices are a fraction of the size of traditional Implantable Medical Devices (IMDs). The new MIMDs can be implanted at the ideal point in the body for effective monitoring therapy, thus eliminating the need for long leads, and enabling minimally invasive surgical procedures. To maximize the benefits of various new technologies, the electronic circuits in MIMDs must be designed specifically to their unique characteristics and requirements. This presentation describes design approaches that help to capitalize on the available opportunities, and enable the dramatic miniaturization required for this new generation of MIMDs.

Andrew Kelly is the Director of Applications Engineering at Cirtec Medical - formerly Cactus Semiconductor - located in Chandler, Arizona. Prior to joining Cactus Semiconductor, he was a Senior Principal IC Design Engineer at the Medtronic Microelectronics Center. Throughout his 30+ year career, he has defined and designed more than 40 full-custom mixed-signal ICs for a wide range of Portable, Wearable, and Implantable Medical Devices including Glucose Meters, Hearing Aids, Cardiac Pacemakers and Defibrillators, Neurological Stimulators, Biological Sensors, and Drug Delivery Devices. He is the Chair of the Industry Advisory Board at the Center for Neurotechnology. He is also a Senior Member of IEEE and serves as Vice Chair of the Phoenix chapter of the IEEE Engineering in Medicine & Biology Society.

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This demonstration seeks to improve the economic viability and resilience performance of new and existing installation energy systems and microgrids by deploying advanced control systems to optimize operations of distinct installation investments. This demonstration will serve as proof of concept for integrated building automated controls and microgrid generation assets with a return on investment using Climatic Building Automated Controls (BAC), ELM Field sight Controller, and Arizona State's Adaptive Control of Energy Systems (ACES). In addition to the financial benefits that define the project the added control system will provide Arizona's Department of Emergency Management Affairs command building: improved energy efficiency, increased operational efficiency, improved resilience

and compliance with DoD goals and regulations for energy efficiency.

Mac Wodicker has devoted his career to supporting the global energy transition to a net-zero carbon economy in an equitable, affordable, and technically feasible way. Currently, he is an electrical engineer and co-lead of the Grid Modernization cohort at the Laboratory for Energy and Power Solutions (LEAPS) with Arizona State University. LEAPS is a unique academic group in that the group primarily focuses on technical assistance and scaling of impact projects — developing appropriate solutions that directly benefit communities. Mac has a variety of experiences with energy-related projects; microgrid system design and control, energy system integration and testing, energy policy and regulation, and electric vehicle adoption and management. He has a master's degree in electrical engineering (power and energy systems) from ASU.

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This session presents guidelines and examples of Generative AI focused on increasing worker productivity. Examples are provided of how Generative AI is already present in your companies. We conclude with guidelines and recommendations on how to design in Generative AI and what to protect against.

Dave Guevara is solutions architect at Complaxion.

<https://www.linkedin.com/in/daveguevara/>



Advanced Solar PV Inverter systems:

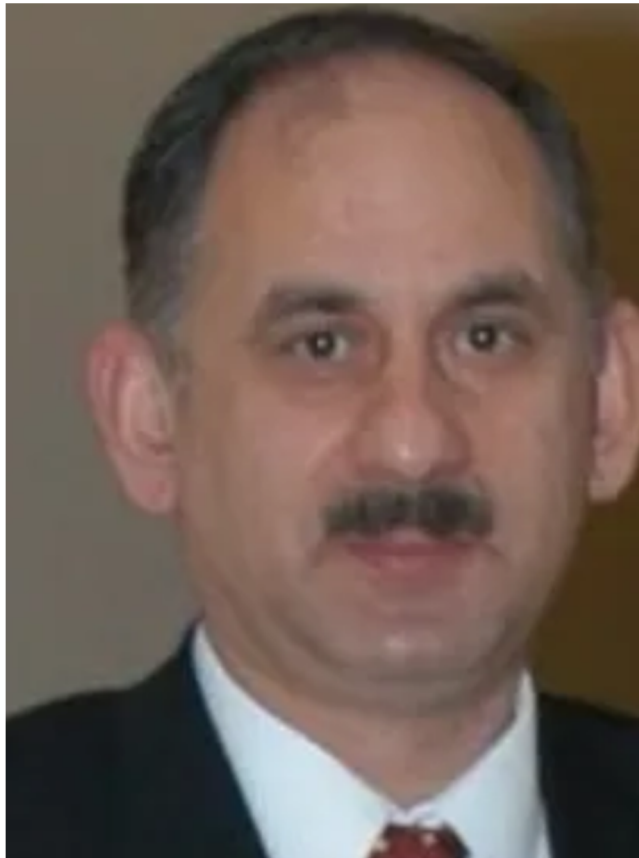
1. Distributed energy resources, especially Solar energy is in the forefront of American clean energy transformation. There has been tremendous growth in the solar PV sector over the last decade with over 75GW of utility scale in operation as of 2022 in the US and with over 50GW to be added in the next couple of years, the importance of the inverter system capability cannot be overemphasized. Key points include – Optimal performance and Operational capabilities of the Advanced inverter system, Reliability, and safety etc.

Henry Aribisala: Director of Applications Engineering – Sungrow USA

With over 20 years' experience in the Renewables and power industry, and in manufacturing environments, Henry has accumulated various engineering and management skills in the industry, ranging from design to field O&M, Hardware Design Quality Assurance and Cybersecurity. He has assumed positions from design engineer to Senior level engineering management. Henry graduated with MSEE (MS- Electrical Engineering) and MS in Energy Policy & Climate from The University of Rhode Island and The Johns Hopkins University, respectively. Presently, Henry is the Director of applications engineering at Sungrow USA corporation.

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5:55 pm Mansoor Khan, Integrated implementation of VPP and VPL concepts to system load.



Integrated implementation of VPP and VPL concepts to system load. To reduce CO2 emissions, there is a need to accelerate the transition from fossil fuels to renewable energy generation. Considering the intermittent of wind and solar resources, several energy storage technologies are being developed to help increase the penetration of renewables. With current development in Internet of Things (IoT) and artificial intelligence (AI) technologies, power system load can be controlled more efficiently by integrated application of Virtual Power Plants (VPP) and Virtual Power Lines (VPL).

Dr. Mansoor Khan, (Engineers Guild) has worked in the renewables field for over 30 years. He has worked on development of wind turbine technology to successfully develop utility scale wind and solar projects. In addition, he is also working on development of community solar projects and evaluation and integration of new and innovative technologies to support and expedite energy transition.

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6:20 pm Lloyd Gordon, Rapidly Evolving Electrical Worker Safety Standards for New Technologies



Technologies are evolving faster than design and worker safety codes can keep up. Such evolving technologies introduce electrical and electromagnetic field hazards not currently well covered by worker safety standards. Examples include energy storage systems, solar power production, electric vehicles, wireless charging, hypervelocity rail systems, wireless power transfer, and space power. This presentation covers the recent changes in electrical worker safety codes, as well as proposed new changes to address electrical safety in solar power, energy storage, electric vehicles, space applications, and more.

Lloyd B. Gordon, PhD in Electrical Engineering, conducted research from 1974 to 1998 for the U.S. Department of Energy and three universities. From 1998 to 2021 managed the electrical safety program at Los Alamos National Laboratory (DOE) for 15,000 employees. Dr. Gordon has 25 years in experimental high-energy research, 45 years as an educator and trainer, and has focused his efforts on R&D electrical safety over the past 25 years. Dr. Gordon is an expert in Direct Current (DC) electrical hazards and all applications of DC, including battery energy storage, standby battery systems, solar power, variable frequency drives, DC transmission and distribution, electric vehicles, capacitors, supercapacitors, and more. Dr. Gordon serves on the NFPA 70E, Chapter 3 task group, arc flash and is a member of the IEEE 1584, Guide to Arc Flash Calculations. Dr. Gordon is a senior life member of IEEE and a member for 53 years.

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Tech Equity, bridging the digital divide and ensuring opportunities and resources are distributed equitably. The advantages of Tech Apprenticeships and how they provide hands-on experience while allowing individuals to apply theoretical knowledge to real-world situations. Apprenticeship journey with The NAB Leadership Program. The importance of Mentorships and how they create a supportive, nurturing learning environment for emerging talent while providing the guidance needed in leadership.

Lucretia Lee-Arceneaux - From a passion ignited at the age of seven while watching WKRP Cincinnati, Lucretia Lee-Arceneaux followed her dream to work in broadcasting. She pursued this drive with her education at SAE Atlanta as an Audio Engineer, and then on to Colorado Media School and the Colorado Broadcasters Association CBA Engineering Academy. Entering the broadcast industry, she continued to excel with roles at internet-based and broadcast radio companies, leading her to her current role as a Broadcast IT Engineer for iHeartMedia after graduating from the NAB Leadership Foundation's T.A.P. Program. Lucretia aspires to become a Chief Technology Officer (CTO) with a vision of overseeing radio and TV buildout projects, as well as driving OTT TV developments. Lucretia is an active member in organizations such as SBE (2014), AES (2014), Grammys (2014), SMPTE (2016), Emmys (2019), and IEEE/WIE/BTS (2022).

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Design considerations for low power sensor systems:

Optimizing power consumption for battery powered sensor IoT applications is a critical factor to attain long term operation with/without hitting a tradeoff on performance. With the growing need for a small form factor system design i.e., less battery size/capacity, this is becoming highly imperative. While a major section of low power design can be directly attributed to careful component selection, several design factors must be weighed in on system, hardware & firmware levels to realize a well optimized power management profile. Further, depending on the application use-case, energy harvesting plays a valuable role to attain self-sustained sensor monitoring solutions. In this talk, let's detail the optimization steps at each stage of system development.

Aswin Sivakumar holds a master's degree in electrical engineering from Arizona State University, U.S.A (2014) and a bachelor's degree in biomedical engineering from Anna University, India (2012). Aswin's academic research includes topics such as electro-oculography based human computer interaction & compressive sensing for fast gesture analysis. With over 9+ years of professional experience, Mr. Aswin Sivakumar has assumed several roles in applications & software domains with various semiconductor industries and startups. Mr. Aswin has a specialized focus on embedded firmware development, inertial sensors, and automotive LiDAR products. Some of Aswin's research publications are available in IEEE Xplore.

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7:35 pm Salute to the Speakers – Thank You!

7:40 pm Special Guest and Happy Hour – First Round of drinks by Consultant Network Seattle

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Suzanne Deffree, Designcon

Lunch Top Golf Scottsdale
Thursday December 7, 12 pm

Speaker Meeting
Thursday 7 pm
Phoenix City Grill
5816 N 16th Street
Phoenix AZ 85016

Saturday Dec 9, 2023 9 am IEEE [Skunk Creek](http://SkunkCreek) 5k/10k Rio Vista Community Park Peoria Arizona

Saturday December 9, 2023, Grand Canyon National Park (3 1/2 hours from Phoenix)



Thank You!

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