7th Annual

WISCONSIN ENERGY EFFICIENCY EXPO

May 13, 2019

A CONFERENCE & EXPOSITION TO PROMOTE ENERGY EFFICIENCY

Presented by:

Wisconsin Chapter of the Association of Energy Engineers

Hosted by:

American Family Insurance

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WISCONSIN ENERGY EFFICIENCY EXPO
KEYNOTE SPEAKER

Wisconsin's Lieutenant Governor

Mandela Barnes

Keynote Topic:

"A Clean Wisconsin for All"

Mandela Barnes serves as Wisconsin's 45th Lieutenant Governor. He was elected on November 8, 2018 and sworn into office on January 7, 2019. He is the first African-American to serve as a Lieutenant Governor in Wisconsin, and the second African-American to ever hold statewide office.

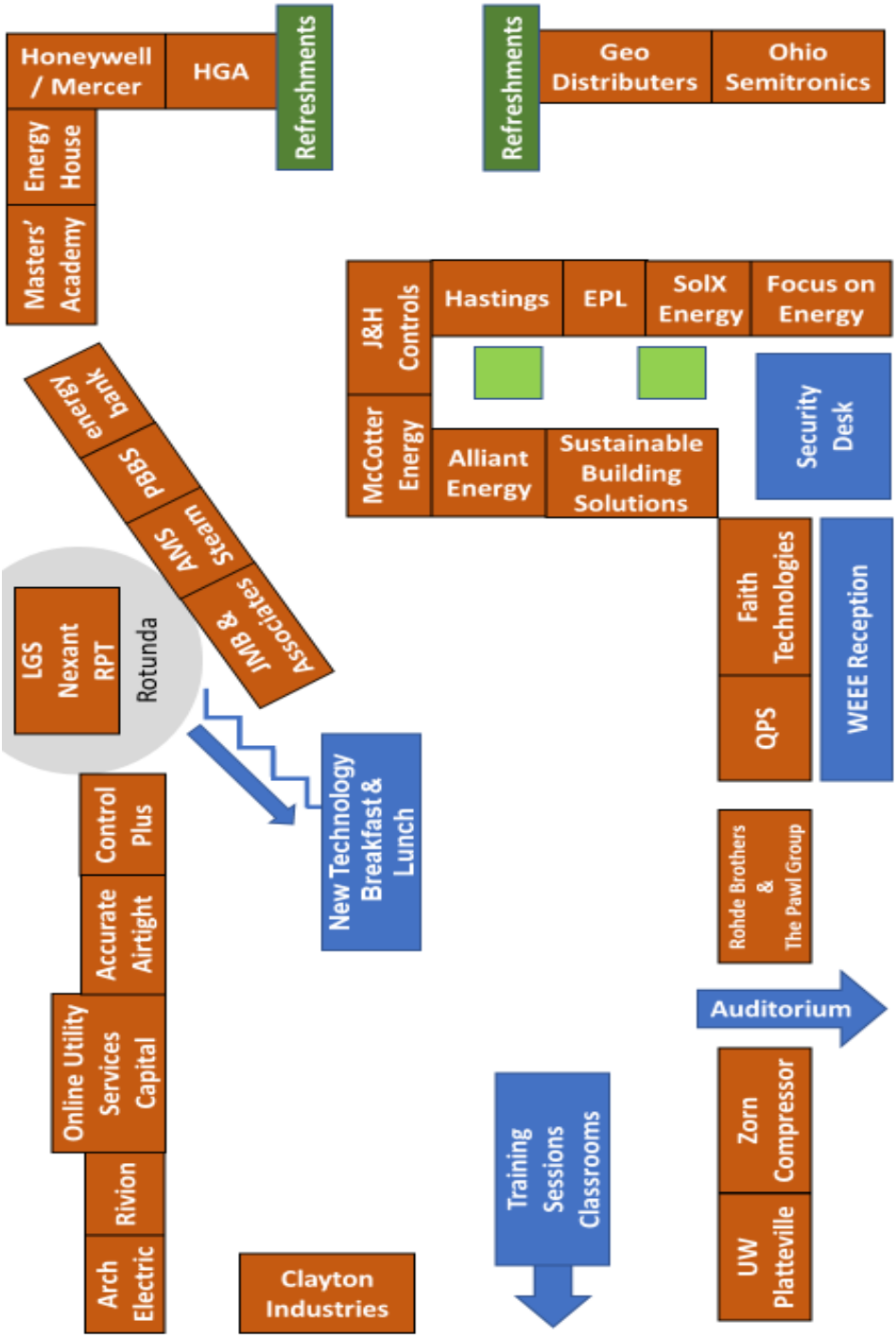
Born and raised in Milwaukee, Mandela is the son of a public-school teacher and a United Auto Workers member, to whom he credits much of his success. He grew up attending Milwaukee Public Schools and is an alumnus of Alabama A&M University. He worked for various political campaigns and in the office of Milwaukee Mayor Tom Barrett, eventually becoming an organizer for Milwaukee Inner City Congregations Allied for Hope, a Milwaukee-based interfaith coalition that advocates social justice. Mandela also worked for the State Innovation Exchange, a national progressive public policy organization.

In 2012, at the age of 25, Mandela was elected to the Wisconsin State Assembly, where he served two two-year terms. His tenure in the State Assembly included serving as Chair of the Legislature's Black and Latino Caucus and becoming a recognized leader on progressive economic policies and gun violence prevention legislation.

As Lieutenant Governor, Mandela will continue to fight for solutions that invest in opportunities and fairness for every child, person, and family in Wisconsin, regardless of zip code.

WISCONSIN ENERGY EFFICIENCY EXPO

SITE MAP



WISCONSIN ENERGY EFFICIENCY EXPO

Morning Schedule

May 13, 2019	WEEE - Wisconsin Energy Efficiency Expo	Room
7:00 – 8:00	Registration (Lobby)	Lobby
7:30	Breakfast Buffet (Cafe Rooms A & B)	Cafe A & B
7:50 – 8:00	Welcome – Jerry Eaton, WAEE President Richard Feustel, WAEE Vice President	Cafe A & B
8:00 – 8:55	New Technology Breakfast Sponsored by: Faith Technologies, LLC	Cafe A & B
9:00 – 9:45	Breakout Training Session #1 ▪ LED Lighting and Automation ▪ M-WERC Delivering Market Insights in 2019 ▪ Compressed Air Efficiency – Crossing over to the "Demand Side" ▪ Six-Step HVAC Maintenance Recovery ▪ Solar + Energy Storage – The Future of Renewable Energy ▪ New Energy Efficiency Technology Claims – Fact or Fiction? ▪ Intelligence & Technology in the Built Environment	 2141 2142 2151 2152 3141 3151 Aud
9:45 – 10:15	Exhibitor Viewing	Exhibit Area
10:15 – 11:00	Breakout Training Session #2 ▪ Setting the PACE for Energy Savings and Sustainability ▪ RENEW Wisconsin – Driving Electric in Wisconsin ▪ When to Select a Variable Frequency Drive (VFD) ▪ "Zero, the Final Frontier…" ▪ Hydrogen: An Alternative Source of Power - The Quiet Disrupter? ▪ Saving Energy & Money with Today's Building Automation / Direct Digital Control Systems ▪ Wisconsin's Political and Regulatory Energy Trends	 2141 2142 2151 2152 3141 3151 Aud
11:00 – 11:30	Exhibitor Viewing	Exhibit Area
11:30 – 11:55	Lunch Buffet (Cafe Rooms A & B)	Cafe A & B

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WISCONSIN ENERGY EFFICIENCY EXPO

Afternoon Schedule

May 13, 2019	WEEE - Wisconsin Energy Efficiency Expo	Room
12:00 – 12:20	Announcements Jerry Eaton – WAEE President	Aud
12:20 – 12:30	American Family Insurance Kari Grasee, Vice President, Business & Workplace Services	Aud
12:30 – 1:00	Keynote Speaker: Wisconsin's Lieutenant Governor - Mandela Barnes	Aud
1:00 – 1:30	Exhibitor Viewing	Exhibit Area
1:30 – 2:15	Breakout Training Session #3 ▪ Understanding Lighting Technology – A Summary of the State of Lighting ▪ Green Masters Program – What You Should Know ▪ An Holistic Approach to Facilities Operating Cost ▪ Elimination of All HVAC Simultaneous Cooling & Heating ▪ Biofuels: What They Are & Their Role in the Bio-Economy ▪ Accurate Energy Measurements in a Changing Regulatory Environment ▪ Natural Gas Market Update ▪ Building Performance Technicians - Jobs & Training; MATC / Technical Colleges meeting the challenge ▪ 50001 Ready or ISO Certification: How Might Your Company Benefit from using the Standard	2141 2142 2151 2152 3141 3151 Aud Cafe A Cafe B
2:15 – 2:45	Exhibitor Viewing	Exhibit Area
2:45 – 3:30	Breakout Training Session #4 ▪ Electronically Commutated Motors (ECM) & Emerging Trends in Modular Pumping, Hydronic and HVAC Design ▪ The Consumer Perspective in the Power Shifts Ahead ▪ Raising the Bar – A Candid Conversation About the Evolution of LEED ▪ Air Barrier Testing and Common Failings ▪ A New Approach – Converting Biogas into Renewable Natural Gas ▪ Harnessing the Sun to Directly Power LED Lighting ▪ Hemp: The New Gold Rush ▪ Well Run Heating and Cooling Systems Really Do Affect the Bottom Line	2141 2142 2151 2152 3141 3151 Aud Cafe A
3:30 – 4:00	Exhibitor Viewing	Exhibit Area
3:45	Exhibitor Visitation Card Drawing: (Must be Present to Win) 1) Milwaukee Brewers Package 2) Two Tickets: Wisconsin Badgers Basketball Game or Green Bay Packers Shareholders Meeting (Winner's Choice)	Exhibit Area
4:00	Plinko Bonus Game Drawing: Chance to win $500	Lobby
4:00	Pick up CEU/PDH Certificates	Lobby
4:15	Closed	

WISCONSIN ENERGY EFFICIENCY EXPO

New Technology Breakfast (NTB)

SPONSOR: FAITH TECHNOLOGIES, INC.

Arch Electric — **Dan Steinhardt**

Solar PV Demand Management 101: How energy storage systems can mitigate demand spikes.

Energy Tech Innovations, LLC — **Bryan Johnson**

Biogas to Renewable Natural Gas (RNG) conversion using water-based purification technology.

Faith Technologies — **Steve Nieland & Dan Winter**

Active power quality mitigation techniques and their potential effects on improving energy and operational efficiency.

GEO Distributors — **David Ball**

Gas modulation retrofit kit for gas driers and hot water stack recirculating pump controllers.

HGA — **Suzanne Ferris**

Full Heat Recovery Engagement (FHRE) design solution.

J & H Controls — **Joseph Scala**

Building Automation/Direct Digital Control Systems, Energy Conservation Programs.

Logical Green Solutions (LGS) — **Bill Fuchs & Rick Kennett**

LGS sets the pace for energy savings and sustainability with manufacturer direct pricing from over 120 manufacturers. They will provide a quick snapshot of a few new LED lighting products.

Masters' Academy — **Jerry Eaton & LaMonte Wilder**

Energy Efficiency Courses and CEEP (Certified Energy Efficiency Professional) Certification (now available on-line).

FAITH TECHNOLOGIES®

WISCONSIN ENERGY EFFICIENCY EXPO

New Technology Breakfast (NTB)

SPONSOR: FAITH TECHNOLOGIES, INC.

MATC (Milwaukee Area Technical College) **Ted Wilinski**

Building Controls (BAS) Technicians and High Performance Building Operation Professionals (HPBOP): Employment, certification and training updates.

Nexant, Inc. **Kevin Coleman**

Combining cloud-based analytics with expert energy engineers, Nexant's Smart Building Services continually optimize building performance; increasing comfort, reducing maintenance, & saving energy.

PBBS Equipment Corp **Scott Rodgers**

Achieving very high efficiencies with high pressure steam boilers using condensing economizers.

Plug Power **Fernando Corral**

Hydrogen and fuel cell solutions for small and large operations including forklift, on-road delivery vans and airport logistics applications.

Radiant Panel Technologies (RPT) **Harry Giovanni**

Lowering overall heating and energy cost by utilizing Graphene insulated heat panels and targeted zone heating mats.

Trane / Ingersoll **Ashley Henderson & Allan Lantz**

Monitoring Based Commissioning: Trane tools for verification and to sustain system commissioning beyond day 1 of occupancy.

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WISCONSIN ENERGY EFFICIENCY EXPO

Breakout Training Sessions

Breakout Training Session #1

(9:00am – 9:45am)

Topic: LED Lighting and Automation (Room 2141)

Description: LED lighting adoption has accelerated rapidly in the past several years. Most the adoption that is occurring today is a one to one replacement of incumbent technology, however, LED lighting has moved well beyond this. Embedded sensors, electronics and software all work together using the language of light and algorithms to automatically learn and interact with each other and your space. Real world application case studies of LED lighting installations will show how the technology is being rapidly adopted in categories that were once considered impossible for LED lighting.

Speaker Information: Eric Haugaard is the Director of Product Technology for CREE Lighting. His career of 32 years includes a variety of positions primarily focused on advanced lighting systems development. Eric holds a Bachelor of Science degree in Mechanical Engineering, with Post-Baccalaureate Program studies completed at NASA/Ames Research Center. He holds 48 US and 16 foreign patents related to lighting technology.

Topic: M-WERC – Delivering Market Insight in 2019 (Room 2142)

Description: With a new Executive Director, new strategic plan, and enhanced working group structure, the Midwest Energy Research Consortium is focused on delivering insights on which energy technologies in the market will win. This presentation will provide an overview of the strategic plan and key activities for 2019.

Speaker Information: Dan Ebert, Executive Director of the Midwest Energy Research Consortium. Ebert became Executive Director in January of 2019. Dan's experience includes time as the Senior Vice President of Government Affairs and External Relations for WPPI Energy. He was responsible for managing oversight of regional energy markets, legislative, and regulatory relations in the Midwest and nationally, and corporate communications for the Sun Prairie-based electric utility serving 51 municipal members in three states. From 2003-2008 he served on the Public Service Commission of Wisconsin (PSC) — serving as its Chairman from 2005-2008. The PSC is the independent regulatory agency responsible for the regulation of Wisconsin utilities. Prior to that, during a 15-year career in Washington, D.C., Ebert served in many public and private sector policy roles including both the U.S. Senate and the U.S. House of Representatives, ultimately serving as the Legislative Director for Senator Maria Cantwell.

Topic: Compressed Air Efficiency – Crossing Over to the "Demand Side" (Room 2151)

Description: After touching upon the improvements made in compressor controls over the last 20 years, I will highlight the energy reductions available by reducing C/A demands thru leak repair and load shedding. Case Studies: Feature 3 or 4 Load shedding projects showing the application, estimated pre and post implementation metrics and the alternative solution.

Speaker Information: Frank Melch is a compressed air industry veteran since 1981. He has worked for a handful of distributors and manufacturers over the years before joining Zorn Compressor in 1999. In his current role, Vice President of Sales, he directs both the company sales efforts and Technical Solutions Group. Frank is a graduate of Lake Forest College (Illinois) with a BA in Economics. In addition, Frank is a Department of Energy (DOE) Compressed Air Systems AIRMaster+ Qualified Specialist.

Topic: Six-Step HVAC Maintenance Recovery (Room 2152)

Description: Before jumping into a major HVAC energy optimization program, it's important that your get the most out of the existing system first. With over 35 years' experience in the HVAC service and temperature control industry; Tom's back to basic presentation will give you a brief outline that can reduce HVAC energy consumption by more than you can imagine. Rarely does the first four steps of his program have a return on investment that exceeds one year!

Speaker Information: Tom Olson has a bachelor of Aeronautical Engineering degree from the University of Minnesota. After brief stints with two major temperature control companies, Tom founded and co-owned an HVAC energy optimization company, which he served as president, for 28 years. During his career, he served in numerous positions of the Minnesota Chapter of ASHRAE, including President.

Topic: Solar + Energy Storage – The Future of Renewable Energy (Room 3141)

Description: Demand Management 101: How can an energy storage system mitigate demand spikes that cannot be controlled operationally. Learn why you should fast track your solar plus energy storage project by taking advantage of the Energy Investment Tax Credit before it expires.

Speaker Information: Dan Steinhardt, is a Master Electrician and Certified Energy Manager, born and raised in Plymouth, WI. He currently lives in Plymouth with his wife and 5 boys, enjoying camping, fishing, and sporting events. He joined the Arch Electric Team in early 2018 after spending 14 years in Energy Efficient Design and Control. His past experiences in power monitoring, lighting, refrigeration, and automation combined with his passion for renewable energy has made him a great asset to the team and his clients.

Topic: New Energy Efficiency Technology Claims – Fact of Fiction? (Room 3151)

Description: Focus on Energy's Emerging Technology Program actively finds, evaluates, and promotes the deployment of emerging energy efficiency technologies in Wisconsin. This presentation will provide an overview on how Wisconsin companies and trade allies can utilize the program. We will then examine a couple of the new technologies that have been evaluated in the past.

Speaker Information: Tim R. Konicek, Ph.D. – Manager, Focus on Energy - Emerging Technologies Program. Tim has over 30 years of private sector business management experience in both large multi-national and start-up companies. This includes energy efficiency finance, technology and business due diligence, product development and commercialization, strategic marketing, and strategic alliances. He has worked in the energy efficiency sector for 15 years. Tim holds M.S. and Ph.D. degrees in Organic Chemistry from Northwestern University and a B.A. in Chemistry from Carthage College.

Topic: Intelligence and Technology in the Built Environment (Auditorium)

Description: Following years of promise, the realization of the Intelligent Building is upon us. Technology has become integrated into our everyday lives and is changing our perceptions of the built environment. Shifts in how we interact with the building through technology is changing how we value the spaces we occupy. This presentation explores how the technology is driving the intelligent building today as well as tomorrow in addition to how this will affect our understanding of buildings.

Speaker Information: Craig Mertes is a technology engineer at HGA Architects and Engineers. Craig has spent over 15 years designing and specifying technology and telecommunication systems in buildings ranging from healthcare to hospitality, government facilities to gaming facility and municipal buildings to corporate spaces. With a focus on designing solutions that deliver positive experiences and values, Craig works closely with clients and users to determine the right technology for each application.

AEE NATIONAL AWARD FOR BEST EXPO

Receiving the Association of Energy Engineers (AEE)
National Award for Best Expo (**WEEE**-2017) on behalf of the **WAEE** Chapter:
Mike Fegley, Michael Mittelsteadt, Jerry Eaton, Tom Omwando.
World Energy Engineering Congress (WEEC) in Atlanta, Ga.

Breakout Training Session #2

(10:15am – 11:00am)

Topic: Setting the PACE for Energy Savings and Sustainability (Room 2141)

Description: Learn how you can implement energy saving technology and "set the PACE" for energy savings and sustainability programs. We will identify a simple process where your challenges can be overcome, and your specific People · Planet · Profit goals can be achieved. PACE is Property Assessed Clean Energy financing for your LED lighting and energy saving technology projects within your privately owned or non-profit facility. The LGS and Nexant team of energy saving experts will provide you with options for you to benefit from energy saving technology without upfront money out of pocket, with no capital expenditure requirement, and without an operations loan. You can actually make money from the energy savings while improving your environmental sustainability. You will definitely want to attend if you have any challenges with or upcoming renovations, expansions, or new construction projects that may include: • Lighting • Solar • Windows • Boilers • HVAC Controls • Refrigeration • Roofing/Insulation • Elevators • Geothermal • SMART building platforms • and more

Speaker Information: Bill Fuchs is company founder and President of Total Team Construction LLC and co-founder and President of Logical Green Solutions LLC. He is an energy saving and environmental advocate with focus on solutions that make sense in regard to sustainability, people, and financial feasibility. He enjoys spending time with family, enjoys hiking and the outdoors, technology, and gaming.

Topic: RENEW Wisconsin - Driving Electric in Wisconsin (Room 2142)

Description: Electric vehicles are fun to drive and more affordable than ever. Learn why electric cars are better for the environment, how to deal with "range anxiety" in Wisconsin, and if investing in an electric car makes sense for you. Get your questions answered so you're ready to "drive electric!"

Speaker Information: Jane McCurry joined RENEW Wisconsin in July 2018 as the organization's first full-time transportation electrification program manager. Jane grew up outside Detroit, Michigan and moved to Madison as a student at the University of Wisconsin. Jane has B.B.A.s in Operations and Technology Management and Environmental Studies. Prior to joining RENEW, Jane was Executive Director of Wisconsin Microfinance, a nonprofit that provides small loans to women in Haiti and the Philippines, where she now serves on the board of directors. In her free time, Jane enjoys working out, going to the farmer's market, and brewing beer and kombucha.

Topic: When to select a Variable Frequency Drive (VFD) Room (2151)

Description: This presentation will provide selection criteria for when a VFD, soft starter or standard across the line starter should be used for various applications.

Speaker Information: Jeff Miller has been in the variable frequency drive and motor control industry for over 30 years. He spent 13 years at Danfoss and 15 years at ABB. Jeff started in R & D engineering and ended as the VP of Sales. Jeff enjoys working with the engineering community on the proper selection and application of VFD's for the HVAC and Water, Wastewater industries.

Topic: "Zero, the Final Frontier…" (Room 2152)

Description: Organizations are setting aspirations for the new and hottest trend of ZERO consumption for their facilities. Whether for energy, carbon, water, and/or waste, they're focusing on ongoing optimal performance, reviewing consumption annually, with a final target of ZERO consumption, or building decommissioning, whichever comes first. There are many programs available to help define and outline a path for ZERO, but what's realistic, how do you achieve it, and is that path right for you.

Speaker Information: As Director of Project Operations, Rock Ridolfi oversees the core operations of Rivion's experienced building consultants, energy engineers, and commissioning agents. Assisting with sales, project scope development, and implementation to discover and attain untapped value for clients. Rock's experience covers benchmarking, LEED®, WELL®, Fitwel®, Energy modeling, ASHRAE energy audits, Investment grade analysis, Commissioning, PACE financing, and Operational strategic planning.

Topic: Hydrogen: An Alternative Source of Power - The Quiet Disrupter? (Room 3141)

Description: It seems that the triumvirate of alternative energy, wind, solar, and lithium could be facing a challenge. Could it be that Hydrogen may prove to be silently upsetting the way we see (and plan) the future? According to Navigant Research "The hydrogen economy is seeing renewed interest and investment, driven by many factors. Policymakers are reacting to increasingly dire climate change warnings by supporting hydrogen as an emissions-cutting measure. Advancements in hydrogen production technologies such as electrolyzers and end-use technologies like fuel cells are improving the economics of hydrogen". Fernando Corral will speak to the success of hydrogen as a fuel and how it has driven the success of Plug Power, quietly over 15 years. Plug Power was the winner of the Fast Company award as one of the top 10 energy innovation companies this last February. Plug's products are being used in some of the world's largest distribution warehouses. Their stationary fuel cell powered generators are deployed globally by some of the world's preeminent telecommunication companies. Fernando has an interesting story.

Speaker Information: Fernando Corral represents Plug Power as Vice President of Sales specifically for the Western Region of the United States and Canada. His responsibilities include strategic oversight and leadership to support sales-related activities of the company's GenKey hydrogen and fuel cell solution. Fernando has more than 30 years of experience in material handling, where he has served in leadership and management roles. Prior to joining Plug Power, Mr. Corral was Vice President and General Manager at Advanced Charging Technologies, General Manager at Komatsu Forklift Retail Operations and Sales Manager at Raymond Handling Solution

Topic: Saving Energy and Money with Today's Building Automation / Direct Digital Control Systems (Room 3151)

Description: The right System, combined with an Energy Conservation Program, is not only a critical element in cost reduction and profitability initiatives within an organization, but provides for top performance and longevity of equipment. Your Building Automation/Direct Digital Control Systems can be utilized like any other "tool", for facilities personnel to do their jobs more effectively, driving operational efficiency and lengthening equipment life. We will examine how your Building Automation/Direct Digital Control System, with proper maintenance and updates, can perform at its optimum level, bringing energy and cost savings.

Speaker Information: Joseph Scala handles Business Development with J & H Controls, a Leader in Building Automation/Direct Digital Control Systems for over 40 years, providing design, installation and service/support throughout Wisconsin. He is a veteran of numerous Presentations with Engineering Firms, Mechanical Contractors and other Specifiers throughout the State of Wisconsin, and has been featured in several industry publications, including The Daily Reporter and Milwaukee BizTimes. He has a wide range of business-to-business and consumer products experience with a wide range of customers during a 30+ year sales & marketing management career. Joseph is also involved in numerous charitable endeavors, including working closely with the American Cancer Society, Alzheimer's Association and Fox Valley Veterans Council.

Topic: Wisconsin's Political and Regulatory Energy Trends (Auditorium)

Description: WEEE is delighted to have one of their featured training presentations return for its 6th consecutive year. The presentation includes an overview of current political and regulatory trends and changes in recent decades. Key statistics regarding Wisconsin's economy, generation resources, supply/demand and rate comparisons along with upcoming federal, regional and state regulations and how that may impact Wisconsin's ratepayers will be presented.

Speaker Information: Todd Stuart is executive director of the Wisconsin Industrial Energy Group, Inc. (WIEG). WIEG is a non-profit association of large energy consumers that advocates for policies that drive affordable and reliable energy. WIEG testifies before the Legislature, the Public Service Commission and the Department of Natural Resources in order to control costs for large ratepayers. WIEG has been instrumental in saving large energy users hundreds of millions of dollars ($) related to proposed utility rate increases that were significantly reduced. Todd received both undergraduate and graduate degrees from UW-Madison.

Breakout Training Session #3

(1:30pm - 2:15pm)

Topic: Understanding Lighting Technology – A Summary of the State of Lighting (Room 2141)

Description: In this session you will get the facts on upgrading lighting in your facilities. We will review LED tubes, door kits, can lights and more. We will then examine the difference between cheap lights and quality lights and why you should understand the difference before you buy. If you are going to spend thousands of dollars upgrading, get it right or you may be spending it more than once.

Speaker Information: Rodney Heller is the principle Investigator researching the effects of light in health care and educational environments. He has a strong interest in improving the health and well-being of the elderly and improving student performance. He utilizes current LED technology to achieve the appropriate spectrum to improve alertness and performance. He has been in the lighting industry since 2002 and has worked closely with researchers from around the world to validate new lighting protocols. He is the chair of Upgrading Lighting Systems in Commercial & Institutional Spaces for the Illuminating Engineering Society. He is Lighting Certified (LC) and a Certified Lighting Efficiency Professional (CLEP).

Topic: Green Masters Program (Room 2142)

Description: The Green Masters Program is the state's only sustainability assessment and recognition program and has been used by businesses since 2010. A starting point for virtually all businesses that are committed to sustainability is energy efficiency and diversifying their energy mix. The Green Masters Program has a section on energy, and we'll walk through the kinds of questions that we ask. In addition, we've had more than 200 businesses participate in the program, and we'll talk about the benefit of including participants in the program in your supply chain.

Speaker Information: Tom Eggert is a senior lecturer at the University of Wisconsin-Madison where he teaches classes in sustainability. He pioneered classes on sustainability leadership and systems thinking at UW in 1994 and has received numerous teaching awards. His interest in sustainability has led him to develop multiple classes at the UW, travel on a Fulbright Scholarship to Latvia (where he taught classes on sustainability) and to develop the School of Business' certificate in Business, Environment & Social Responsibility. In 2008, he founded the WI Sustainable Business Council. In addition to his work with UW, he founded and oversees Wisconsin Microfinance; a non-profit that raises money for microloans in Haiti and the Philippines. He holds a law degree from George Washington University, a Master's in Public Administration from UW, and prior to law school, was a Peace Corps volunteer in the Philippines.

Topic: A Holistic Approach to Facilities Operating Cost (Room 2151)

Description: We will discuss case studies around the major components of facility operating costs; Active Maintenance, Preventive Maintenance and Utility Bills. We will discuss opportunities associated with these major components as well as tools you can use to estimate short-term and long-term plan for the operational budgets. We will also discuss resources and incentives available that can help pay towards reducing your operating expenses.

Speaker Information: Farhan Khatri has over 19 years of building engineering systems design, commissioning and energy optimization experience. He currently works as a Regional Manager at Edison Energy and is based out of Madison, WI. Farhan has been the instructor for multiple classes at the University of Wisconsin – Madison in building integration and performance. He also provided a course of USGBC in commissioning process for building owners. He has been published in Building Operating Management, Consulting – Specifying Engineer and Society of Automotive Engineers. Farhan has a B.S. in Mechanical Engineer from UW – Madison and is registered as a Professional Engineer in the State of Wisconsin. His certifications include Certified Energy Manager, Project Management Professional, Qualified Commissioning Process Provider, and LEED AP.

Topic: Elimination of All HVAC Simultaneous Cooling & Heating (Room 2152)

Description: In 1975, ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, developed ASHRAE Standard 90-75, the document that eventually became America's first ever energy code. It is now known as ASHRAE 90.1. In this presentation, Tom will demonstrate numerous styles of air handling systems and how they fail to eliminate simultaneous cooling and heating, as well as how to economically fix them.

Speaker Information: Tom Olson has a bachelor of Aeronautical Engineering degree from the University of Minnesota. After brief stints with two major temperature control companies, Tom founded and co-owned an HVAC energy optimization company, which he served as president, for 28 years. During his career, he served in numerous positions of the Minnesota Chapter of ASHRAE, including President.

Topic: BioFuels - What They Are & Their Role in the Bio-Economy (Room 3141)

Description: This presentation will begin by exploring the types of biofuels currently on the market, and a deeper examination of first-generation biofuels for ethanol and biodiesel production. Further discussion will follow on the environmental impacts, both negative and positive, biofuels have had in the US and worldwide, with a re-examination of "food vs. fuel" debate. Advanced biofuels and new technology will be explored with an emphasis placed on emerging feedstocks and processes. Lastly, we will consider the bio-economy and look at the impact the Renewable Fuel Standards, and the changes RIN credits have undergone.

Speaker Information: Dr. Pamela Tas earned her Ph.D. in Plant Breeding and Plant Genetics from the University of Wisconsin-Madison and currently holds a faculty position at the University of Wisconsin-Platteville in Sustainability and Renewable Energy Systems. Dr. Tas' research interests are in biofuels with a focus on dedicated energy crops for biodiesel, biodiesel standards and quality, and sustainable farming practices. Currently, Dr. Tas teaches classes in the area of Biofuels, Bio-Renewable Resources, Data Analysis and Verification Tools, and industry-led projects for Senior Design.

Topic: Accurate Energy Measurements in a Changing Regulatory Environment (Room 3151)

Description: Measurement Accuracy – Why is it important? The DoE has already changed the measurement requirements for electrical energy and energy efficiency on compressors and pumps. They are conducting hearings on other equipment with still more categories in the pipeline for review. This presentation will examine how these changes impact the energy measurement world. We will review key factors impacting electrical energy measurements, what drives measurement accuracy, why it's important, and how to achieve adequate measurements at reasonable cost.

Speaker Information: Bob Shaw is the President of Ohio Semitronics, Inc. (OSI) a private-sector firm providing electrical measurement solutions in a variety of demanding environments including; Petroleum and Petrochemical, Electric Utility, Solar and Wind Energy, Test and Measurement, Automation and Control and Naval surface and subsurface applications. OSI holds multiple patents in electrical power and energy monitoring, and has products UL listed, ATEX and IECEx certified and RoHS compliant as required. Bob's background in electrical measurement dates to his time teaching metering courses for GE's Meter Business Department as well as multiple regional Meter schools. Some more seasoned readers may also remember him from his work with Scientific Columbus and Leeds and Northrup. Bob holds a BSEE from Rose-Hulman Institute of Technology and a MBA from the Ohio State University. He also holds a General Radiotelephone License, Asphalt Plant Operators License and the Six Sigma Green Belt.

Topic: Natural Gas Market Update (Auditorium)

Description: As the shale revolution continues the question on the mind of many is, have we reached the bottom of the natural gas market? If not, where is the bottom? If so, where do we go from here?

Speaker Information: Brian Zirbes, Business Development Manager, has been with Constellation Energy for over 15 years, helping industrial and commercial customers across Wisconsin and the Midwest manage their natural gas costs. Brian holds an MBA from the University of Wisconsin Milwaukee and received his undergraduate degrees in Finance and Marketing from UWM as well. He has been a WAEE member since 2013.

Topic: Building Performance Technicians - Jobs & Training; MATC / Technical Colleges Meeting the Challenge (Cafe Room A)

Description: In today's economy people who can and are willing to work have many opportunities. Employers are having problems finding, let alone qualified, employees. In building operations and construction this posses many problems, especially when it comes to finding people who want to learn the trade. In this discussion, two types of highly skilled positions, 1) building controls technicians and 2) high performance building operations technicians, are discussed along with training and certification being developed around these trades.

Speaker Information: Ted Wilinski has had a career of working on energy management and facilities operations, including as consulting engineer and educator specializing in facilities and energy management. At Milwaukee Area Technical College (MATC) Mr. Wilinski has developed several courses and currently teaches in the Automated Building Systems program, which includes building controls, M&V, energy auditing, and commissioning. In addition to teaching at MATC, he is also involved with the National Science Foundation (NSF) Advanced Technological Education (ATE) grant program, the Building Efficiency for a Sustainable Tomorrow (BEST) Center, and continues consulting for his firm, Wilinski Associates Inc.

Topic: 50001 Ready or ISO Certification: How Might Your Company Benefit from using the Standard (Cafe Room B)

Description: Most companies continuously improve the performance of their business systems? Did you know that just like quality or safety, there is a standard for improving the management of your energy resources? And you have a choice: 50001 Ready or ISO certification. Learn more about your options for building stronger energy productivity in your company and leave with three actions you can take to get started beginning tomorrow!

Speaker Information: Mark Stover works for the Large Energy Users Program of Focus on Energy. He works with customers across the state who are interested in creating a strategic energy management system based on the ISO 50001 Standard and continuous improvement of energy intensive processes. Prior to his work with Focus on Energy, Mark provided performance excellence consulting services for National Grid, a major utility in the northeastern U.S. Mark's background includes 15 years consulting with a variety of manufacturing companies across the state to help them find ways to improve their productivity and another decade managing quality and operations at Bruker AXS, a manufacturer of analytical X-ray instrumentation. He has an MBA from UW Madison and lives in Columbus, WI.

Breakout Training Session #4

(2:45pm - 3:30pm)

Topic: Electronically Commutated Motors (ECM) and Emerging Trends in Modular Pumping, Hydronic and HVAC Design (Room 2141)

Description: A discussion of the impacts of the availability of larger permanent magnet EC motors (ECM) on pumping and hydronic design and efficiency. The presentation will place specific focus on parallel pumping strategies with EC motors and controls.

Speaker Information: Dan McCotter - President McCotter Energy Systems, Inc. Since 1956, McCotter Energy Systems provides high efficiency commercial boiler room and HVAC systems that are uniquely designed to provide reliability to the clients they serve in Wisconsin and the Upper Peninsula of Michigan.

Topic: The Consumer Perspective in the Power Shifts Ahead (Room 2142)

Description: Economics and environmental priorities are aligning utilities toward renewable energy as the next "fuel" of choice, but where's the consumer in the Big Transition to a more distributed, cleaner, next-gen energy future? How will this transition impact small business? Citizens Utility Board (CUB) of Wisconsin's Tom Content will provide an overview of what's happening on evolving energy policy in Wisconsin and what's at stake for consumers, and businesses in our state. Tom will explain how we can have more say in the energy future already unfolding before us. CUB, celebrating its 40th anniversary in 2019, is the independent consumer voice for homeowners, renters and small businesses across Wisconsin.

Speaker Information: Tom Content is executive director of the Citizens Utility Board of Wisconsin. He joined the Citizens Utility Board in 2017 after working for more than 30 years as a journalist. He became interested in energy and what it costs households while sitting in the back seat, waiting for what seemed like forever, during the gas lines of the '70s. After graduating from Boston University's College of Communication Tom worked at newspapers in Massachusetts and Pennsylvania before moving to Wisconsin. He reported on utilities and worked as business editor at the Green Bay Press-Gazette in the 1990s and then moved to Milwaukee, where he covered energy, utilities and sustainable business for the Milwaukee Journal Sentinel. His reporting on energy and climate change won the National Press Club's Stokes Award for Energy Writing in 2007. Tom and his family live in Glendale.

Topic: Raising the Bar – A Candid Conversation About the Evolution of LEED (Room 2152)

Description: LEED, or Leadership in Energy and Environmental Design, was built upon the concept that all people should have access to green buildings in which to live, learn, work, and play. What started as a rating system geared toward commercial buildings and interiors has expanded, over the past 20 years, to include schools, homes, historical structures, health care facilities, and even entire neighborhoods. This global leadership standard has inspired incredible market transformation and continues to raise the bar in green building. Join your local USGBC representatives to get reacquainted with this remarkable tool. Learn about recertification and the new LEEDv4.1 that is bigger, stronger, and bolder than ever.

Speaker Information: Korinne Haeffel is a LEED Accredited Professional and a CSI Construction Document Technologist (CDT) with an extensive passion for sustainable practices in the built environment. As Director of Community Advancement in Wisconsin, Korinne holds strategic and operational responsibility for USGBC local engagement as well as developing and being ultimately responsible for major initiatives. Her role is highly focused on identifying and nurturing opportunities for expansion, while simultaneously supporting and growing relationships with existing partners, members, event sponsors, volunteers, and allied organizations. With past professional experience as a Green Building Specialist, Korinne guided project teams and existing building owners through the sustainable building processes. Korinne's formal educator roles includes a faculty position at the Milwaukee Area Tech College, and instructor for the nationally recognized Building Operators Certification Program. Korinne earned a Bachelor of Science degree in Architectural Studies from UW Madison.

Topic: Air Barrier Testing and Common Failings (Room 3151)

Description: This presentation is designed to clarify expectations of performing diagnostic air barrier testing on existing and new construction structures. This presentation will cover specifics of defining and performing diagnostic air barrier testing on large buildings. What is a whole building air barrier test? How does this differ from testing small buildings? When should zonal testing be specified? Some of the equipment that is used to complete and air barrier test. What is the goal of different types of testing from quantitative to qualitative testing? Discussion of standards being tested to along with discussion of the ABAA standard. The presentation will review common building defects we consistently see in the field. Attendees will know; why to test, idea of what a test may look like, and where common failings of the air barrier are.

Speaker Information: Torrance Kramer has been passionately working to reduce energy consumption in buildings across the country throughout his career as an energy manager. Having completed thousands of comprehensive energy audits on various buildings types, he began to see the lack of understanding in air barriers. This led to testing building air barriers and conveying the necessity for an effective air barrier in the older building stock as well as buildings being built today. He has tested air barriers on most buildings' types; from military to municipal to multifamily. He now operates Accurate-Airtight Exteriors which tests, repairs, and consults on quality building air and thermal barriers.

Topic: A New Approach – Converting Biogas into Renewable Natural Gas (Room 2141)

Description: This presentation will provide an overview and discussion of; biogas generation, where biogas comes from, challenges related to the quality of biogas and treatment/purification technologies that can be used to convert biogas into Renewable Natural Gas (RNG). As part of this discussion, details of a biogas purification pilot operating at MMSD's Jones Island WWTP will be shared to show how RNG can be produced using a new water scrubbing method. This presentation will include details related to; energy consumption, process comparisons with pros and cons, economics, and a summary of performance factors.

Speaker Information: Bryan Johnson is the president and founder of Energy Tech Innovations, LLC (ETI). Bryan is a professional engineer with more than 30 years of experience in both, private industry and as a consultant. His experience includes working for national and international companies. Bryan earned a bachelor's degree in Civil and Environmental from the University of Wisconsin Madison. Throughout Bryan's career he has focused on biogas energy utilization and has related expertise in waste minimization, feasibility reviews, permitting, facility design and facility operations. Bryan has worked on the development and implementation of biogas energy projects across the united states. ETI is in the process of commercializing a new biogas upgrading process method that produces renewable natural gas (RNG) using water as a natural solvent to purify the gas.

Topic: Harnessing the Sun to Directly Power LED Lighting (Room 3151)

Description: Introducing the latest breakthrough in economically viable renewable energy: LED directly powered by the sun - a completely new way of harnessing solar power to directly energize LED fixtures in commercial/industrial applications. The concept is brilliantly simple: Use the DC power output from photovoltaic solar panels to directly energize LED fixtures – eliminating wasteful traditional conversion to AC.

Speaker Information: Neal Verfuerth, Founder and CEO of energybank. Neal has been a thought leader in the energy management, industrial/ commercial lighting and controls space for more than 35 years with a proven track record encompassing product innovation, world-class manufacturing and technology integration. One of the nation's top 500 inventors, he is listed as the primary inventor on 74 patents, 99 applications filed, and 1234 citations in the areas of lighting, controls and daylighting technology. With unmatched experience in lighting, controls and energy systems management, Neal's ground-breaking products, disruptive technologies and innovative systems have been recognized by some of the world's most prestigious organizations. His expertise in the critical areas of thermal and optical properties and management are applied to the configuration of the LED light engine, maximizing its light output, light quality, efficiency, durability and longevity.

Topic: Well Run Heating and Cooling Systems Really Do Affect the Bottom Line (Cafe Room A)

Description: The purpose of heating and cooling hasn't changed over time, but how we design and maintain these systems is constantly evolving. Terms like efficiency, optimization, reduction, reuse, green and sustainable are driving changes faster than ever before. Traditional practices are being questioned, poked and prodded each day. This presentation explores the very real pitfalls and gains realized by vigilant forward-thinking maintenance programs using the best available technologies.

Speaker Information: Bjorn Pearson is the President and General Manager for HydroFLOW Midwest. Bjorn has spent over 10 years driving production innovation and environmental sustainability for the manufacturing, healthcare and service industries. Listening to a customer's needs, Bjorn helps them achieve metrics beyond their current norms.

Topic: Hemp: The New Gold Rush (Auditorium)

Description: Hemp has been used for beneficial use for thousands of years. It was banned as a narcotic in the United States early in the 20th century because of misconceptions and its close relation to Marijuana, because both are from the cannabis family. The 2018 Farm Bill legalized hemp throughout the country. The use of cannabidiol (CBD) for medical and dietary benefit is driving a rapid surge in demand for hemp-derived products. The fledgling hemp industry is responding with a flood of activity for growing, harvesting and processing hemp. The sheer volume of material presents unique utility demands and thus creates energy efficiency opportunities. The Pawl Group will provide background on the history of hemp, uses of the plant, how it is grown, harvested and processed, and finally the energy demands and energy efficiency potential.

Speaker Information: Craig Bahr, P.E., CEM has more than 25 years of design, construction and engineering experience, working with complex mechanical and environmental systems. His education includes a Bachelor of Science degree in Environmental Engineering from the University of Wisconsin-Madison and graduate coursework at Marquette University and the Milwaukee School of Engineering. Craig is a registered Professional Engineer, a Certified Energy Manager (Association of Energy Engineers), a LEED Accredited Professional (US Green Building Council), and a Six Sigma Green Belt. Craig's experience includes energy solutions for industrial and food processing customers in addition to extensive experience in a wide variety of projects from process heating and cooling to plant utilities to industrial heating and ventilation as well as water and wastewater treatment. In addition to new construction projects, Craig, Principal Engineer for The Pawl Group, leads the business development efforts, including evaluation of new markets and business growth strategies. He also provides engineering support for process utility and energy efficiency/sustainability projects.

Todd Hammond, CEM, has over 30 years of operations management, process engineering and project management experience in the food and beverage industry. He holds a Bachelor of Science degree in Chemical Engineering from Iowa State University, a Six Sigma Gold Belt and is a Certified Energy Manager (Association of Energy Engineers). Todd has managed projects ranging in size from small lighting upgrades to plant expansions to new greenfield plants. Todd's responsibilities at the Pawl Group include oversite of the Process Engineering Group, directing project execution teams and developing sustainability/energy efficiency concepts.

WISCONSIN CHAPTER
OF THE
ASSOCIATION OF ENERGY ENGINEERS

WAEE (**W**isconsin Chapter of the **A**ssociation of **E**nergy **E**ngineers) has over 200 members representing hundreds of Wisconsin businesses, utility companies, contractors, suppliers, academia, consultants, and state organizations. **WAEE** monthly meetings focus on energy efficiency, networking, and modern technologies; followed by a tour of the facility showcasing their energy reduction efforts. Past meetings were held at:

ABB	Gundersen Health	Oshkosh Defense
Alliant Energy	Hastings Air	Polyfab Corp
American Family Insurance	Harley Davidson	Potawatomi Casino
Appleton WWTP	Hunzinger University	Quad Graphics
Aurora Medical Center	JF Ahern	Renew Aire
Bemis Manufacturing	JH Findorff & Sons	Ripon College
Bubolz Nature Center	Johnson Controls Inc	Rexnord Falk
Bucyrus/Caterpillar	Johnson Creek Schools	Rosendale Dairy
Camp Randall Stadium	Kwik Trip - HQ	Sargento Foods
Charter Steel	Kohl Center	Sisters of St. Francis
Cleaver Brooks	Kohler Company	Seventhwave
Columbia Power Plant	Letterhead Press	Sheboygan WWTP
CREE	McCotter Energy Systems	Spaceport Sheboygan
Dane County Landfill	Quality Power Solutions	Trek Bicycle
EAA, Oshkosh	Madison Gas & Electric	University of Wisconsin
Energy Bank	MATC- ECAM Lab	Valley Power Plant
Environmental Systems, Inc	MillerCoors	WE Energies
EPIC	Miller Park	WI - Energy Innovation
Faith Technologies	Menasha Packaging	WI State Capitol
Greenheck	Mercury Marine	WI – Timber Rattlers

WAEE and its members have received numerous awards which includes;

CHAPTER AWARDS:
AEE National – Young Energy Professional (2018)
AEE National – Exposition of the Year (2017)
AEE National – Chapter of the Year (2013, 2016)
AEE National – Best Student Chapter (2016)
AEE National – Best Chapter Meeting - WEEE (2015)
AEE National – Best Chapter Website (2014)
Most New Members (2008, 2010, 2013)

INTERNATIONAL AWARDS:
Energy Engineer of the Year (2014)
Energy Manager of the Year (2011, 2013)
Renewable Energy Project of the Year (2013)

MIDWEST REGIONAL AWARDS:
Energy Manager of the Year (2011, 2016)
Energy Professional Development Award (2011, 2013)
Energy Innovator of the Year (2011, 2013)
Young Engineer of the Year (2009)

Visit **WAEE's** website (**www.thewaee.org**) for additional information regarding upcoming meetings, training and events, or to become a **WAEE** member.

WAEE
Scholarship Program

2010	$2,500	5 Scholarships
2011	$3,000	4 Scholarships
2012	$4,500	7 Scholarships
2013	$4,750	5 Scholarships
2014	$7,050	7 Scholarships
2015	$8,000	9 Scholarships
2016	$10,000	10 Scholarships
2017	$9,500	6 Scholarships
2018	$11,500	9 Scholarships
2019	$12,500	9 Scholarships
	$73,300	71 Scholarships

Since 2009, 71 students representing 9 different Wisconsin colleges and universities have received $73,300.

*Corporate sponsors and membership dues provide the funding for **WAEE**'s scholarship program.*

2019 Scholarship Award Recipients
Madison, Wisconsin

Front Row: Keegan Jauch, Danielle Del Conte, Amy Reiser
Middle Row: Jerry Eaton, WAEE President; Collin Rayome, Hannah Exner, Jaclyn McNulty
Back Row: Mark Albert, Scholarship Committee Chair; Richard Feustel, WAEE Vice President
Not pictured: Nate Bevers, Sawyer Stuckey, Noah Vaculik

WISCONSIN ENERGY EFFICIENCY EXPO
EXHIBITORS

Accurate-Airtight Exteriors	**GEO Distributors**	**Online Utility Services Capital**
Alliant Energy	**Hastings**	**PBBS Equipment Corp**
AMS Steam Products	**HGA**	**Quality Power Solutions (QPS)**
Arch Electric	**Honeywell Int. / Mercer Sales**	**Rivion**
Clayton Industries	**J & H Controls**	**Rohde Brothers**
Control Plus Inc.	**JMB and Associates**	**SolX Energy**
energybank	**Logical Green Solutions (LGS) Nexant & RPT**	**Sustainable Building Solutions, a Division of Hunzinger Construction**
Energy Performance Lighting (EPL)	**Masters' Academy**	**The Energy House**
Faith Technologies	**McCotter Energy**	**UW Platteville**
Focus on Energy	**Ohio Semitronics**	**Zorn Compressor & Equipment**

WISCONSIN ENERGY EFFICIENCY EXPO
DOOR PRIZES

Exhibitor Visitation Card Drawing (3:45pm) Winner will play Plinko for a chance to win $50 to $500.

Plinko Game – Everyone with a raffle ticket is invited to play the Plinko Game anytime throughout the day for cash and prizes. For those who are lucky to land on the bonus slot, will be entered into a drawing. At 4pm, at the **WEEE** registration desk, we will draw two winners, who each will receive one of the two following prize packages:

- Milwaukee Brewers Package:

	Donated by:
✓ 4 Brewer Tickets with Parking:	Sustainable Building Solutions, a Division of Hunzinger Construction
✓ Yeti Cooler:	HGA
✓ $100 Visa Card (Food & Drinks):	Rohde Brothers

- 2 Tickets to either a Badger Basketball Game or the Green Bay Packers Shareholders Meeting Donated by: Paul Van de Sand

WISCONSIN ENERGY EFFICIENCY EXPO
HOST AND SPONSORS

AMERICAN FAMILY INSURANCE

Madison, Wisconsin-based American Family Insurance group is the nation's 13th-largest property/casualty insurance group and ranks No. 311 on the Fortune 500 list. The company sells American Family-brand products, including auto, homeowners, life, business and farm/ranch insurance, primarily through its exclusive agents in 19 states. American Family affiliates (The General and Homesite) also provide options for consumers who want to manage their insurance matters directly over the internet or by phone. Affiliate Main Street America sells insurance products through independent agents. Facebook: **www.facebook.com/amfam** Twitter: **www.twitter.com/amfam** Web: **www.amfam.com**

FAITH TECHNOLOGIES

Faith Technologies, Inc. is a national leader in electrical planning, engineering, design, installation and commissioning that simply goes further. They strive to out-perform everyone else in the General Building, Mission Critical and Industrial markets by continually investing in their employees' skill sets and providing all-inclusive services that make project work easier and more rewarding while placing customer value and safety first. This is the mindset that Faith Technologies brings to every project, thanks to their comprehensive service approach and Integrated / Design-Build Project Delivery methodology. Serving as your single design and implementation partner, they maximize quality, safety, and efficiency by providing electrical design, engineering, turn-key project implementation, and site management all under one contract and one schedule.

ROHDE BROTHERS

Rohde Brothers is one of Wisconsin's most successful, well-known and respected commercial / industrial contractors. Their reputation of integrity and reliability dates back to 1911. Rohde has designed and fabricated award-winning systems and progressive solutions for new and established companies representing a variety of industries including food processing, cheese making, industrial manufacturing and die casting.

HGA

HGA was founded in 1953. HGA is a national multidisciplinary design firm rooted in architecture and engineering. They believe that enduring, impactful design results from deep insight into the people and passions that animate each unique environment. They value empathy, are fueled by curiosity, and embrace the hard work that leads to innovation. HGA's work has received numerous awards and top rankings from their own industries, as well as those of their clients. Equally as meaningful to them is shared legacy they create with their clients.