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WEEE 2022

Wisconsin Energy Efficiency Expo

October 19, 2022 | 7 am - 4:30 pm

Potawatomi Hotel & Casino

1721 W. Canal Street
Milwaukee, WI 53233

CONFERENCE & EXPOSITION PROMOTING EFFICIENCY & CONSERVATION

PRESENTED BY



WITH OUR PARTNERS





Slipstream is a nonprofit that discovers, tests, and scales climate solutions in buildings and communities. Its headquarters is in Madison with staff across the U.S. Slipstream’s work spans the next generation of energy efficiency and renewable energy training, research, and programs that move us farther, faster toward a clean energy economy.

We Energies provides affordable, reliable, and clean energy to more than 2.2 million customers in Wisconsin. We’re focused on strengthening the fabric of the communities we serve by building and maintaining safe, resilient infrastructure, while reducing greenhouse gas emissions. With our continued investments in solar, wind and battery storage, we’re a national leader in the decarbonization effort. Our goal: net carbon neutral by 2050.

..... **Welcome** | 8:15–8:30 am

Welcome to WEEE | Jerry Eaton | WAEE President

Welcome to Milwaukee | Erick Shambarger | City of Milwaukee



Erick Shambarger is the Director of Environmental Sustainability for the City of Milwaukee, where he leads the Environmental Collaboration Office (ECO). ECO develops practical solutions that benefit Milwaukee’s environment and economy. Mr. Shambarger oversees implementation of the Refresh Milwaukee sustainability plan and coordinates Milwaukee’s involvement with local, national and global partnerships on environmental sustainability. He oversees all of ECO’s programs, including the Milwaukee Energy Efficiency (Me2) program, the Milwaukee Better Buildings Challenge, Water Centric City initiative, the HOME GR/OWN program and green infrastructure work. He led development of the City’s Green Infrastructure Plan that was adopted in 2019 and is currently the Project Manager for the forthcoming Climate and Equity Plan. He also negotiated the City’s largest solar energy project to date, a 2.25MW solar system on a city-owned landfill. Mr. Shambarger also

launched Wisconsin’s first Commercial Property Assessed Clean Energy (PACE) program that has financed over \$38m in projects in the City. He is also co-founder of the Wisconsin Local Government Climate Coalition (WLGCC.org). Prior to his current role, he served as City Economist in the City’s Budget and Management Division. He holds a Masters of Public Affairs degree from the University of Wisconsin and certificates in Water Technology; Energy Analysis and Policy; and Business Communications.



Introduction of Keynote **Jennifer Szedziewski** | We Energies

Jennifer Szedziewski is an account manager with We Energies serving large industrial, educational, and healthcare customers in Southeastern Wisconsin. She also leads discussions on renewable energy options for meeting sustainability goals and driving towards energy efficient operations. Jennifer is a Professional Engineer with a BS in Civil Engineering, Certified Energy Manager, and recent MBA graduate.



Keynote Speaker **Ryan Brown** | Molson Coors Brewery

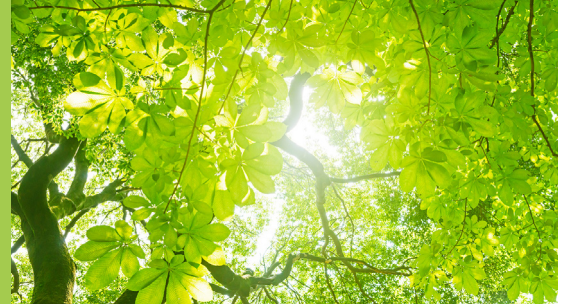
From nuclear weapons to beer, **Ryan Brown** has been at the forefront of technology for the last 30 years. Ryan currently serves as the Technical Services Manager at Molson Coors Brewery in Milwaukee, where he is responsible for utilities, facilities, engineering, maintenance, and environmental operations. Under his leadership, the brewery is one of the 2022 Focus on Energy Efficiency Excellence Award winners. Prior to Molson Coors, he spent 19 years at Anheuser-Busch in various positions in California and New York. Ryan is an electrical engineer from the University of Notre Dame and began his career at the Los Alamos National Laboratory.

SUSTAINABILITY AT MOLSON COORS

Molson Coors is a leader in sustainability, and you might be surprised at how far we go to achieve goals for energy and water usage and reduce our greenhouse gas footprint. The company has made great strides over the last ten years through a systematic approach that is supported by senior leadership. Data and reporting have been leveraged to bring actionable opportunities to the front line. Strategic use of capital for both large and small projects has provided the step changes required to achieve aggressive targets while employee dedication provides the foundation for sustainability. Lofty goals are followed by even loftier goals that require bigger ideas as we go forward in our quest for a carbon neutral footprint.



Door Prizes



Jackery Portable Power Station and Solar Panel

Two—Jackery Explorer 240 Portable Power Station and 60W Solar Panel (\$500 value)

Must be present to win.

Donated by: Wisconsin Association of Energy Engineers (WAEI)



BP Gift Cards

Four \$250 PB Gas Gift Cards.

Must be present to win.

Donated by: Wisconsin Association of Energy Engineers (WAEI)



Green Bay Packers Share Holders Meeting

Two tickets to the Green Bay Packers Share Holders Meeting in 2023.

Must be present to win.

Donated by: Paul Van de Sand

Miller Neon Signs

Two Miller Neon signs.

Must be present to win.

Donated by: Molson Coors Brewery

Milwaukee Brewers Baseball Tickets

Four tickets to a 2024 Milwaukee Brewers game.

Must be present to win.

Donated by: Hunzinger Construction Company

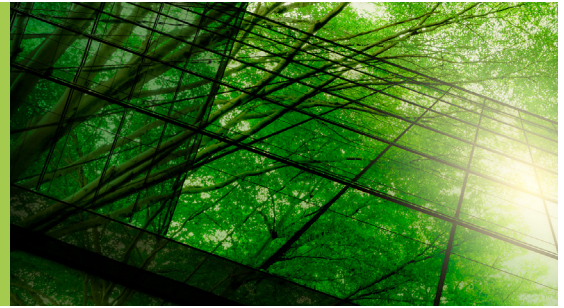
UW-Madison Badger Basketball Tickets

Two tickets to a 2022–23 UW-Madison Badger Basketball game.

Must be present to win.

Donated by: Paul Van de Sand

WAE & Member Awards



WAE Chapter Awards

AEE National | **Exposition of the Year** (2017, 2019, 2021)

AEE National | **Young Energy Professional** (2018)

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)

Energy Engineer of the Year (2014)

Energy Manager of the Year (2011, 2013)

Renewable Energy Project of the Year (2013)

Midwest Regional Awards

Energy Engineer of the Year (2011, 2016)

Energy Professional Development Award (2011, 2013)

Energy Innovator of the Year (2011, 2013)

Young Engineer of the Year (2009)

International Awards

Energy Engineer of the Year (2014)

Energy Manager of the Year (2011, 2013)

Renewable Energy Project of the Year (2013)

**WAE Membership
Information**
www.thewaee.org

- Free monthly meeting & webinar attendance
- Free WEEE Conference & Expo admission
- Reduced fee for WEEE Conference Exhibit Space

Schedule and Sessions

(details on pages 8-15)



- 7-7:15 am **REGISTRATION**
- 7:15-7:45 am **BREAKFAST**
- 7:30-8:15 am **NEW PRODUCT / TECHNOLOGY BRIEFS**
- 8:15-8:30 am **WELCOME TO WEEE | Jerry Eaton, WAEI President**
- WELCOME TO MILWAUKEE | Erick Shambarger,**
Director of Environmental Sustainability, City of Milwaukee
- 8:30-9:15 am **EXHIBITOR VIEWING | DOOR PRIZE DRAWING**

9:15-10 am | TRAINING SESSION 1

<p>Your path to smarter energy Steve Nieland EnTech Solutions</p> <p>PROSPERITY ROOM</p>	<p>Global and local energy technology transitions Scott Olsen Olsen Consulting, LLC</p> <p>INSPIRE ROOM</p>	<p>Building integrity and energy savings by air sealing Torrance Kramer Accurate-Airtight Exteriors</p> <p>CLARITY ROOM</p>	<p>What is arc flash and why is limiting its effects important? Mike Bukovitz Tech4, LLC</p> <p>PROGRESS ROOM</p>
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- 10-10:45 am **EXHIBITOR VIEWING | DOOR PRIZE DRAWING**

10:45-11:30 am | TRAINING SESSION 2

<p>The nature and benefits of energy audits in industry Pawel Olszewski UW-Oshkosh</p> <p>PROSPERITY ROOM</p>	<p>Is the operation of your dust / fume collection system truly energy efficient DuWayne Bohrer Hastings Air Energy Control, Inc. Kevin Rohde IVEC Systems</p> <p>INSPIRE ROOM</p>	<p>Is immersion cooling the next LED light bulb? Chad Cape LiquidCool Solutions</p> <p>CLARITY ROOM</p>	<p>Why training of BMS operators is KEY to controlling energy cost Xiaohui "Joe" Zhou Slipstream</p> <p>PROGRESS ROOM</p>
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Schedule continued

11:30 am **LUNCH**

11:45 am–Noon **ANNOUNCEMENTS** | **Jerry Eaton**, WAEE President

Noon–12:45 pm **INTRODUCTION OF KEYNOTE** | **Jennifer Szedziewski**, We Energies

KEYNOTE SPEAKER | **Ryan Brown**, Molson Coors Brewery

12:45–1:30 pm **EXHIBITOR VIEWING** | **DOOR PRIZE DRAWING**

1:30–2:15 pm | TRAINING SESSION 3

<p>Leap from basic benchmarking to emissions inventory, strategy, and targets</p> <p>Rock Ridolfi Rivion</p> <p>PROSPERITY ROOM</p>	<p>Emerging building policies in Milwaukee and Madison to support resilience and climate action</p> <p>Jessica Price City of Madison</p> <p>Pamela Ritger de la Rosa City of Milwaukee</p> <p>INSPIRE ROOM</p>	<p>The cost of not going solar</p> <p>Dan Steinhardt Arch Electric</p> <p>CLARITY ROOM</p>	<p>Power quality in renewable energy systems</p> <p>John Houdek Allied Industrial Marketing, Inc.</p> <p>PROGRESS ROOM</p>
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2:15–3 pm **EXHIBITOR VIEWING** | **DOOR PRIZE DRAWING**

3–3:45 pm | TRAINING SESSION 4

<p>Energy treasure hunts: The best way to find, rank, and develop energy projects</p> <p>Alex Dodd Grumman/Butkas Associates</p> <p>PROSPERITY ROOM</p>	<p>Distributed energy technology platform</p> <p>Neal R. Verfueth Energybank Inc.</p> <p>INSPIRE ROOM</p>	<p>Compressed air efficiency—savings on the demand side</p> <p>Frank Melch Zorn Compressor & Equipment</p> <p>CLARITY ROOM</p>	<p>University water management</p> <p>Tim Wissing Badger Meter</p> <p>PROGRESS ROOM</p>
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3:45–4:30 pm **EXHIBITOR VIEWING** | **GRAND PRIZE DRAWING**

4:30 pm **ADJOURN**

Your path to smarter energy

Steve Nieland | EnTech Solutions

TRAINING SESSION 1—PROSPERITY ROOM

With energy rising energy costs, government mandates, resiliency issues becoming more common, declining renewable energy costs and environmental stewardship becoming more widely discussed, clean energy is top of mind for industries across the US, but often, companies don't know where to start. Building out a sustainable energy program can be difficult, which is why we created Path to Smarter Energy; a step-by-step guide for organizations who are looking for a place to start. It includes an initial energy usage assessment through battery energy storage and beyond, aligning with financial, operational and environmental goals. In this presentation, we will discuss what Path to Smarter Energy is and how companies can get started.



About Steve

Steve Nieland is Vice President of Innovation for EnTech Solutions, the energy division of Faith Technologies Incorporated. In his role, Steve is responsible for identifying technologies, policies, and differentiated approaches to drive innovative product, process and partner

solutions for energy system delivery, monitoring and performance. Steve holds degrees in electronics and chemistry as well as having additional studies in paper science, computer science and electrical engineering. He has been certified by ASQ as an ISO 9000 lead auditor and lead implementer. Steve has served in the past as local chair for the American Chemical Society, as a member of the Executive Committee for the University of Wisconsin-Stevens Point Academy of Letters and Science, as a member of the Biopharma Sustainability Roundtable, and as a business consultant and management mentor.

Global and local energy technology transitions

Scott Olsen | Olsen Consulting, LLC

TRAINING SESSION 1—INSPIRE ROOM

Mr. Olsen provides a brief overview of US and European natural gas markets along with reviewing the huge technological changes happening in the electric utility industry, the auto industry and the building design and construction industry. Increasing temperatures and the “you will be assimilated” war impacts are also noted. Options such as energy efficiency, demand management, carbon management, tax credits and the critical importance of feedback for quality control in the building construction industry are reviewed. Issues that the speaker thinks need more consideration are also presented.



About Scott

Scott Olsen has over 30 years of providing productivity improvements in commercial and industrial facilities. His work with HVAC&R and energy efficiency includes positions at A&E firms in MN and WI; state government; commercial building control firms; and an Investor

Owned Utility (IOU). He lived and worked in Oslo, Norway for two years, three months in Germany and several weeks in Ukraine. His Mechanical Engineering undergraduate degree focused on thermal environmental engineering in commercial buildings. Scott's 20 years with an Investor Owned Utility informs his thoughts on the significant technology changes impacting the electrical grid and society. Scott's Master's degree in Public Administration and Policy with focus on Energy Analysis & Policy provides a global view on energy use in society. The program encompassed energy using sectors, economics, engineering, the environmental, and policy approaches. Scott believes energy use benchmarking is an excellent tool for quality control and continuous improvement for leaders in commercial building design and construction. His extensive field experience provides a valuable perspective on theory vs practice in commercial buildings.

Building integrity and energy savings by air sealing

Torrance Kramer | Accurate-Airtight Exteriors

TRAINING SESSION 1—CLARITY ROOM

Have you wondered why certain rooms are so much cooler than others, why certain areas of a building are more prone to ice dams, or why your HVAC system runs more in one building (one floor) than another? All buildings have locations where air escapes, where some areas are worse than others. This presentation will review common locations of building air barrier failings and what can be done about it. Key areas covered includes; performing diagnostic air barrier testing on existing and new construction, how to correct common building defects, and the associated equipment used. By the conclusion of the presentation attendees will know if their building warrants testing or air barrier repairs.



About Torrance

Torrance Kramer is a Certified Energy Manager and is passionate about reducing energy cost for his customers. He has completed thousands of comprehensive energy audits on all types of buildings over the last 20 years. It became evident that there was a lack of

understanding in the field of building envelope integrity. This led Torrance to focus on specializing in air barrier testing and thermal barriers. For the last 8 years, he has operated Accurate-Airtight Exteriors which provides consulting, training, testing, and repairs building air and thermal barriers.

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What is arc flash and why is limiting its effects important?

Mike Bukovitz, P.E. | Tech4, LLC

TRAINING SESSION 1—PROGRESS ROOM

Can you protect electrical assets while at the same time eliminate NFPA 70E PPE (Personal Protection Equipment) requirements for personnel working on this equipment? This presentation will answer this question. The presentation will start by discussing what is arc flash and why limiting its effects is so important to the safety of all personnel involved. The presentation will continue with a review of arc flash mitigation options and the advantages/disadvantages to each. Today's state of the art option is Arc Quenching and when implemented will eliminate PPE requirements.



About Mike

Mike Bukovitz is the Vice-President of the Power System Solutions business of Tech4 LLC, based in De Pere, Wisconsin. A graduate of Michigan Technological University and the University of St. Thomas, Mike has been working with electrical power systems for the past 40

years, focused primarily on improving system reliability and safety. His roles have been in engineering, R&D, organizational leadership, and business development. His previous employers include Scott Paper, Siemens, Square D (Schneider Electric), and Tech4 LLC. In this capacity, he has worked on-site in power system projects in 63 different countries. Mike has spent the previous two grounding decades improving electrical power system designs and is an industry advocate for high resistance grounding and active arc flash mitigation. He has been involved with active arc quenching technologies and products since 1999.

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The nature and benefits of energy audits in industry

Dr. Pawel Olszewski | UW-Oshkosh

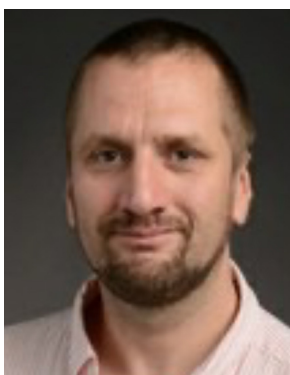
TRAINING SESSION 2—PROSPERITY ROOM

The aim of the presentation is to discuss an energy audit in a manufacturing company as an answer for the most recent changes emerging in an energy sector. From one side, these changes are shaped by the ambitious sustainability policies, propagated through media. From the other side, everyday engineering practice experiences limitations, having their nature in Laws of Thermodynamics. To provide a right perspective, this presentation is structured into two parts: "big picture" short review of global energy situation and presentation of energy audit cases.

The global energy situation will be discussed, based on: past oil crisis in Japan, current situation in the European Union, and the future vision of the energy sector drafted by the US Energy Information Administration.

Energy audit will be discussed based on three real cases: basic assessment of a simple individual system, (air compressors), analysis of a complex energy systems (multi-chiller system), and multi-level energy mapping and flow analysis for entire manufacturing process (corn ethanol plant).

This presentation shows why energy audits in manufacturing sector should be a fundamental factor determining the energy transformation, linking industrial reality with wishful thinking.



About Pawel

Dr. Pawel Olszewski serves as Associate Professor in the Department of Engineering and Engineering Technology at the University of Wisconsin–Oshkosh since its beginning in 2014. During this time, he adopted and taught most of the engineering courses.

In addition, he designed and constructed Teaching and Energy Research Industrial Lab, providing an infrastructure for advanced-level classes and applied research published in top-rated, energy-related journals.

Pawel focused his professional interests on modeling and optimization of energy conversion processes in the manufacturing sector. He conducted over 80 energy audits in various production systems generating significant energy savings. Pawel also built and patented a prototype of an energy efficient flameless combustion furnace, implementable in various metallurgical processes.

Pawel's educational path lead him from Warsaw University of Technology, Poland, where he was granted Master and Doctorate degrees in Power Engineering, to his Postdoc at the University of Michigan, Ann Arbor. His professional career from early stages has been coupled with both academic and industrial sectors. For nearly ten years he was working in the Central Laboratory of the largest natural gas company in Central Europe (Polish Oil and Gas Company). He was delegated to the European Union Committee for Standardization, elaborating ISO standard "EN 16314 Gas meters, additional functionalities". He turned his interest towards energy conservation in industry while working in the Poland–Japan Energy Conservation Technology Center.

Having his skills and knowledge, Pawel's professional goal is to serve and consult the local industrial sector in an energy area.

Is the operation of your dust / fume collection system truly energy efficient

DuWayne Bohrer | Hastings Air Energy Control, Inc.

Kevin Rohde | IVEC Systems

TRAINING SESSION 2—INSPIRE ROOM

It's one thing to control/capture your dirty air from manufacturing processes, it's another to do it intelligently! Modern industrial dust and fume collection systems typically lack the controls and monitoring needed to be truly energy efficient.

The presentation will start off by reviewing a typical block diagram and the energy cost associated with today's collection systems. We will then describe some of today's technology advancement associated with operating high-performance industrial fume and dust collection system. The presentation will conclude with a review of case studies that highlight potential energy reduction opportunities associated with improvements to include VFDs, blast gates, and intelligent controls.



About DuWayne

DuWayne Bohrer draws on 29 years of experience in the industrial air cleaning and ventilation energy control environment. He led the group that developed the automation controls which save companies thousands of dollars by optimizing performance for

new and existing systems. DuWayne believes in delivering specialized solutions based on carefully chosen equipment models to achieve value for businesses. With experience in every phase of the design-build process, DuWayne is an expert in helping businesses meet codes, standards, and regulations while delivering systems that provide the lowest cost-of-ownership.



About Kevin

Kevin Rohde, IVEC Systems, Kevin has 14 years of experience in the industrial sector and over 27 years of national leadership. With a focus on improving business processes and delivering results, Kevin's experiences give him unique insights into making business

improvements from the business customer perspective. As General Manager and part owner of Hastings Air Energy Control, Kevin continually improved processes to serve the industrial ventilation air cleaning marketplace. This included introducing a proprietary energy management system to a national distribution network. Now, leading the Ivec Systems Company, he has helped refine an operational model that designs, builds, assembles, and supports industry leading Intelligent Ventilation Energy Control products and services.



Is immersion cooling the next LED light bulb?

Chad Cape | LiquidCool Solutions

TRAINING SESSION 2—CLARITY ROOM

As computers, servers, and other electronic devices get smaller and more powerful, the efficient removal of their heat is one of today's hottest topics. For decades, electronics have generally been cooled by moving vast amounts of air. Sadly, air's low specific heat capacity, combined with fans, filters, and other air-conditioning equipment, make such methods grossly inefficient. Immersion cooling, by contrast, uses a dielectric liquid to cool and protect electronic equipment without the cost and inefficiencies associated with complex HVAC systems. This presentation will provide an overview of immersion cooling technology, including what makes it more sustainable, reliable, versatile, and economical than legacy systems. It will also demonstrate why immersion cooling technology is the next LED lightbulb, presenting tremendous opportunity for energy managers/engineers, sustainability professionals and design/consulting engineers to consider for their next energy efficiency project(s).



About Chad

Chad Cape leads business development efforts for LiquidCool Solutions, leaning on skills gained while qualifying as an engineer in the US Navy's submarine service. In the private sector, Chad gained sales, finance and global business experience while servicing

middle and large corporate clients of JPMorganChase. A life-long Packer Backer, he and his wife, Debbie, have raised three Badgers and a Hawkeye.



Why training of BMS operators is KEY to controlling energy cost

Dr. Xiaohui “Joe” Zhou | Slipstream

TRAINING SESSION 2—PROGRESS ROOM

Advanced building controls and energy management strategies could result in an average of nearly 30% energy savings. Unfortunately, there is an industry-wide knowledge gap on how to utilize advanced building controls to capitalize on energy savings. This presentation, will help you make more informed decisions, better specify and commission building controls systems, and manage and operate buildings more efficiently. In addition, the session will showcase a new building controls free training resource for energy managers and building operators and describe the benefits of ASHRAE Guideline 36.



About Joe

Dr. Xiaohui “Joe” Zhou is a Director of Research and Innovation at Slipstream with more than 25 years of experience in commercial building energy efficiency with focuses on building controls, smart buildings, grid-interactive efficient buildings (GEB), as an engineer, researcher, and project/

program/facility manager. Joe is a member of ASHRAE and is actively involved in the local ASHRAE chapter as well as in the ASHRAE Technical Committee TC 1.4 Control Theory and Applications and TC 7.5 Smart Building Systems. He is a voting member of ASHRAE Standing Guideline Project Committee SGPC 36, High-Performance Sequences of Operation for HVAC Systems. Joe holds a B.S. (Zhejiang University) and M.S. (University of Connecticut) degrees in Electrical Engineering, and a Ph.D. degree in Mechanical Engineering (Iowa State University.) His past working experiences include application engineer at Johnson Controls and researcher & energy efficiency program manager at Iowa Energy Center.



Leap from basic benchmarking to emissions inventory, strategy, and targets

Rock Ridolfi | Rivion

TRAINING SESSION 3—PROSPERITY ROOM

Focusing on the ‘E’ of the ESG conversation. Many buildings and organizations have struggled with basic benchmarking of energy use, especially throughout the Covid-era. Now, they’re tasked with expanding their benchmarking to include Scope 1, 2, and 3 emissions. We’ll highlight FAQ from investors, owners, and building operators regarding developing an emissions inventory and baseline and implementing a strategy to achieve realistic reduction targets. We will also address related opportunities for water, waste/recycling improvements, and resilience.



About Rock

As Director of Project Operations, Rock Ridolfi oversees the core operations of Rivion’s experienced building consultants, energy engineers, and commissioning agents. He approaches every project with a well-balanced, creative, and opportunistic mindset, navigating between

the standard and the innovative, while maintaining focus on budget, timeline, and overall value sought by Rivion’s clients.



Emerging building policies in Milwaukee and Madison to support resilience and climate action

Dr. Jessica Price | City of Madison

Pamela Ritger de la Rosa | City of Milwaukee

TRAINING SESSION 3—INSPIRE ROOM

Cities across Wisconsin are playing an increasingly important role in tackling the climate crisis. This includes a growing exploration of local policies that can reduce greenhouse gas emissions from the built environment. This presentation

TRAINING SESSION 3 | 1:30–2:15 pm—cont.

will highlight prospective building policies in the City of Milwaukee and Madison including PACE financing, energy benchmarking, building tune-ups, and building performance standards. We will also discuss opportunities for collaboration in development of these policies with stakeholders in our communities, energy professionals, and more.



About Jessica

Dr. Jessica Price is Sustainability and Resilience Manger for the City of Madison, where she works to develop and implement policies, programs, and strategies that advance climate resilience, sustainability, and environmental justice. Top priorities include climate action to meet Madison’s

ambitious climate and energy goals; investments in equitable, no- and low-carbon transportation and city fleet vehicles; and improving the energy efficiency of affordable housing and commercial buildings. Prior to joining the Mayor’s Office, Jessica served as Renewable Energy Strategy Lead for the Nature Conservancy in New York. Jessica has a PhD in Landscape Ecology and an MS in Conservation Biology from the University of Wisconsin-Madison.



About Pam

Pamela Ritger de la Rosa leads efforts to reduce energy use in City of Milwaukee-owned buildings, administers the PACE program, and supports the Better Building Challenge among other efforts to advance building energy efficiency and sustainability. She also works on

expanding the electric vehicle charging network in the City of Milwaukee and advancing the transition of municipal fleets to electric and other low emissions vehicles. As a member of the City-County Task Force on Climate and Economic Equity since 2019, she looks forward to helping implement many recommendations of the Milwaukee Climate and Equity Plan

in this role. Pam is joining ECO after more than 8 years with Clean Wisconsin, the state’s oldest and largest environmental non-profit advocacy organization, where she held the title of Milwaukee Program Director and Staff Attorney. She is a graduate of the University of Wisconsin Law School and the La Follette School of Public Affairs, and completed a certificate in Energy Analysis and Policy from the Nelson Institute for Environmental Studies at UW-Madison. Pam is also on the Advisory Board of the Midwest Renewable Energy Association and is an active member of the Wisconsin Hispanic Lawyers Association

The cost of not going solar

Dan Steinhardt | Arch Electric

TRAINING SESSION 3—CLARITY ROOM

Demand Management 101: In a world where every cost-saving measure seems to have been exhausted, most commercial and industrial owners are unaware of the saving potential associated with solar and energy storge type systems. This presentation will review what are demand charges and how solar and energy storage systems can reduce not only energy consumption but mitigate these demand spikes resulting in a reduced utility bill. In addition, we will review how to take advantage of the Energy Investment Tax Credit before they expire.



About Dan

Dan Steinhardt is a Master Electrician and Certified Energy Manager. Dan was raised and currently lives in Plymouth, WI. He joined the Arch Electric team in early 2018 after spending 14 years in the Energy Efficient Design and Controls field. 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.

Power quality in renewable energy systems

John Houdek | Allied Industrial Marketing, Inc.

TRAINING SESSION 3—PROGRESS ROOM

From the electrical perspective, clean energy is not always clean. Renewable energy and battery storage inverters can contribute significant harmonic distortion onto power systems and to the equipment they supply. Whether they are grid-tied or stand alone, they may affect the operation of electrical and electronic equipment they serve. Equipment that may be affected includes LED lighting, Capacitors, UPS, VFDs, etc. In addition to capacity limits vs current draw of loads, different inverter techniques and filter configurations can make a big difference in overall compatibility. This session discusses power quality aspects of renewable energy systems and offers some guidance for achieving harmony between the power source and connected loads.



About John

John Houdek is president and co-owner of Allied Industrial Marketing, Inc. (Cedarburg, WI, USA), a company that specializes in electrical power quality. John serves the power quality industry as a resource for a variety of power quality services including problem diagnosis, harmonic

analysis, filter design, computer simulation, training and seminars as well as technical marketing support for key components used for the assembly of high performance power quality (filtering) equipment.

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Energy treasure hunts: The best way to find, rank, and develop energy projects

Alex Dodd | Grumman/Butkas Associates

TRAINING SESSION 4—PROSPERITY ROOM

An energy treasure hunt is a collaborative quest where your employees uncover opportunities to save energy. When properly conducted, it is the best way to create a complete list of the viable opportunities within a facility, or a specific process. Since 2019, over 72 facilities have participated in the U.S. EPA’s “Find the Treasure” campaign. As a result, they have found over \$52 million worth of cost savings through feasible projects. This presentation will describe the benefits and best-practices of treasure hunts. It will provide an overview of the US EPA’s “Energy Treasure Hunt Guide” and other custom tools for facilitation. The presentation will cover preparation for the event, efficient use of internal and external resources, reporting of results to management, and development of projects to shovel-ready status.



About Alex

Alex Dodd is a Project Manager for Grumman/Butkus Associates: Energy Efficiency Consultants and Sustainable Design Engineers. Alex graduated from UW-Madison as a Mechanical Engineer in 2004. He has been a consultant in the field of energy-efficiency and renewable energy

generation for 15 years. Alex has facilitated treasure hunts at a variety of large industrial and commercial facilities. In addition to project hunting and investment-grade analysis, he specializes in retro-commissioning and commissioning of industrial and commercial automation systems.

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Distributed energy technology platform

Neal R. Verfuert | Energybank Inc.

TRAINING SESSION 4—INSPIRE ROOM

Learn about the benefits of adopting a holistic strategy that combines on-site Photovoltaic Solar, Smart LED Lighting, Demand Response IoT, Predictive Failure Analytics as well as programs available to enhance Return on Investment by reducing initial investment and/or off balance sheet financing.



About Neal

Neal R. Verfuert—Founder/CEO of Energybank Inc—A proven track record as a thought leader and inventor of Disruptive Technology. Now having more than 100 patents issued since 2001, his technology has been deployed in more than 10,000 facilities including 30% of the

Fortune 500. These companies have realized more than \$1.6 Billion in cumulative savings and 13.7 Billion Tons of indirect CO₂ emissions reduced. Additional benefits include 724 megawatts of permanent load reduction to the electric grid.

Compressed air efficiency—savings on the demand side

Frank Melch | Zorn Compressor & Equipment

TRAINING SESSION 4—CLARITY ROOM

After touching upon the efficiency improvements made in compressed air equipment and controls over the last 20 years, we will highlight the energy reduction opportunities available outside of the compressor room—on the Demand Side. In this presentation we'll reinforce the impact of reducing C/A demands through leak detection and repair, especially with efficiency source equipment. Additionally, we will feature 3 or 4 load shedding projects we've done showing the application, estimated pre and post implementation metrics and the alternative solution.



About Frank

Frank Melch is a compressed air industry veteran having started in the industry in 1981. He worked for a variety of distributors and manufacturers over the years before joining Zorn Compressor & Equipment in 1999. In his current role of Vice President of Sales & Marketing,

he directs the company's sales efforts, Marketing and Business Development, and the Technical Solutions Group. Frank is a 1981 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.

University water management

Tim Wissing | Badger Meter

TRAINING SESSION 4—PROGRESS ROOM

Badger Meter is a value-add solution partner who helps our customers and channel partners control, manage and optimize water resources. Managing from when water enters the building to when it leaves. With the combination of our metering solutions, quality solutions, gas solutions and our digital management tools, Badger Meter can have a positive impact for our customers striving for net-zero emissions. This presentation will cover the topics of Sustainability, HVAC, Irrigation and Water Quality.



About Tim

Tim Wissing, Manager of Regional and Inside Sales for Badger Meter's North American flow instrumentation group. Tim has over 15 years of working within the field of Flow Metering, focusing on helping people select and implement flow meters within the HVAC, water

management, and wastewater markets. He enjoys utilizing his skills to contribute to the exciting technological advances that happen every day at Badger Meter. Tim is a US Navy Veteran and a Magna Cum Laude graduate of Cardinal Stritch's College of Business and Management.

EXPO Exhibitors



Accurate-Airtight Exteriors

Accurate-Airtight Exteriors is a full service energy savings company in business since 1998. From concept to implementation, let us be your guide. Air barrier consulting, enclosure repair, energy audits, and pressure testing services for existing and new construction buildings. Let us show you how to prevent and stop energy loss.

Alliant Energy

Description pending

Allied Industrial Marketing, Inc. Power Quality Specialist

At Allied Industrial Marketing our goal is to help you solve or prevent power quality problems. Whether you have only one challenging load or a complete facility affected, we can help to diagnose the problem, quantify the magnitude of the problem through analysis and simulation, and recommend methods to solve it. We use computer simulation to evaluate alternative solutions for power quality problems including technical services, along with seminars and trainings.

Arch Electric

Description pending

Clayton Industries

Description pending

Eaton Corporation

Eaton manufactures power quality products and software technologies that are extremely reliable, efficient, safe and sustainable. We specialize in a large variety of products such as UPSs, PDUs, racks and digital solutions to improve the quality of life for our customers.

Energybank Inc.

Energybank is an industry leader who recently developed a Distributed Energy Resource platform called "Fusion". It bundles high performance LED lighting, Industry 4.0 technology, and Photovoltaic Solar into a holistic system that delivers a value proposition that has no equals.

Faith Technologies

Faith Technologies Incorporated (FTI) is a dynamic organization comprised of construction, engineering, manufacturing and renewable energy experts. We create success for our partners and team members through innovation and expertise, rethinking how energy is designed, applied and consumed and providing solutions that go beyond the ideas of today. With expertise across all our divisions—Faith Technologies®, EnTech Solutions™ and Excellerate®—we are one connected company, bringing our partners' visions to life to ensure a sustainable future. For more information, visit faithtechinc.com.

Focus on Energy

Focus on Energy works with energy managers and property owners to help businesses of all types install cost-effective energy efficiency and renewable energy projects. Visit the Focus on Energy booth to learn more about opportunities to support your business needs.

Hastings Air Energy Control, Inc.

IVEC saves energy and utility costs through the system's constant monitoring and control of your facility's process ventilation and filtration components. For most companies, the savings are so significant that IVEC pays for itself in just a few short years. Conventional systems run at full power during daily operation. IVEC provides "intelligent ventilation" that automatically adjusts fan output speed up or down on-demand depending on the process requirements of your process ventilation system.

HGA

HGA is a national interdisciplinary design firm rooted in architecture and engineering. We believe that the best design results from deep insight into the people and passions that animate each unique environment. More than 800 people in 11 offices from coast to coast work to make a positive, lasting impact for clients in healthcare, arts and culture, community, corporate, education, government, science and technology, and energy markets.

Hunzinger Construction / Sustainable Building Solutions

Hunzinger Construction Company is unconditionally dedicated to achieving excellence in the marketplace by understanding and exceeding customer expectations through integrity, honesty and ethical conduct. Tradition, quality, safety and attention to detail will result in long lasting client relationships built on trust, and the highest level of professionalism.

J&H Controls

Smart Building Solutions for Facility Management and Energy Control—J&H Controls offers compelling value to building operators and facility managers. Through our solutions, conventional facilities can be transformed into dynamic, flexible and intelligent buildings with higher efficiencies, lower costs and greater returns. From HVAC to lighting to security to elevators, our systems enable comprehensive monitoring and management of nearly every aspect of your facility including; Authorized Cylon Auto-Matrix solutions integrator, Certified Niagara Solutions Integrator, and WFOE Trade Ally.

EXPO Exhibitors continued

JMB Associates, ABB

JMB is a full service manufacturers representative, stocking distributor and service company. We sell and service ABB variable frequency drives for HVAC and Water / Waste Water applications; CRC (Critical Room Controls) for hospital room pressurization controls and fume hood controls; Badger Meters water, steam and Sage gas meters; Ebtron air flow stations, and gas detection systems by Honeywell (Vulcain), QEL and Brasch. We also are a distributor for Phase Technologies (single to three phase converters), TCI VFD accessories and Mamac transducers.

McCotter Energy Systems

McCotter Energy Systems provides high efficiency commercial boiler room and HVAC systems that are uniquely designed to provide reliability to the clients we serve in Wisconsin and the Upper Peninsula of Michigan. We specialize in complete boiler room design with a selection of high-efficiency boilers, burners and water heating equipment suited for industrial applications.

Onsite Utility Services Capital

Onsite provides Energy-As-A-Service, with a proven process to reduce your electricity, gas, water or waste costs. ONSITE customers report, 12-40% end-to-end energy use reductions resulting in lower monthly utility bills, less energy consumption and lowered carbon footprint—without upfront costs or capital expenditures—just energy bill savings, from day one!

Rivion

Rivion is committed to improving building performance with energy and sustainability solutions that reduce operating costs, increase asset value and create healthy environments. Rivion's experienced, dedicated team has a history of successful projects across the globe. A holistic approach enables the Rivion team to leverage their fundamental knowledge of buildings and building operations with the latest in energy and sustainability technologies and methods. This approach is designed to produce early and ongoing value for clients, making sure their assets run as efficiently and intelligently as possible.

Schaeffer's Specialized Lubricants

Schaeffer Oil, interestingly enough, is a green company. Yes, green Schaeffer will help you meet sustainability objectives. We extend drain intervals consuming less oil. We have amazing anti-friction additives to reduce energy or fuel consumption.

Tech4, LLC

We automate industrial machinery, all day, every day. We know how to design it so that it will work. We have worked with hundreds of components, evolutions of software, and a variety of mutating networks. We discard the ineffective and apply the effective. We have only one objective: to make it work the way you intended.

The Energy House

The Energy House is a leader in LED lighting in Wisconsin, completing over 3,000 LED lighting installations. The Energy House is a full service, Blue Ribbon trade ally with the Focus on Energy programs. We provide a full lighting audit and retrofit for new fixture options for all of your lighting needs.

UE Systems

UE Systems is a manufacturer of ultrasonic instruments and systems that are utilized in energy conservation and maintenance. Areas of emphasis include compressed gas leak detection, steam leaks, motor and bearing lubrication, and electrical component inspection.

Werner Electric Supply Fluke/Leviton

Werner Electric Supply is a distributor and provider of quality electrical products and services, including lighting, datacom, pneumatic, safety and automation solutions. Werner Electric leverages its team's industry expertise to maximize the operational investments of its customers in the industrial, contractor, OEM and system integrator markets. The company has 11 branches and serves much of Wisconsin and Michigan's Upper Peninsula.

Werner Electric Supply Rockwell Automation

Description pending

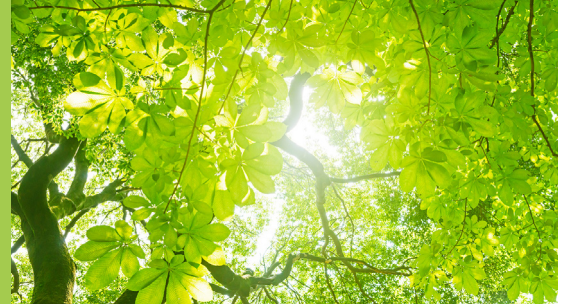
Wisconsin Sustainable Business Council

The Wisconsin Sustainable Business Council's (WSBC) mission is to advance sustainable principles and practices forward through the power of business. We support companies and sustainability professionals through an array of programming, education, resources, and tools. We are a catalyst for businesses looking to integrate sustainability into the fabric of their organization. Come learn about free resources you can use to support sustainability integration!

Zorn Compressor & Equipment

Zorn Compressor & Equipment is the Midwest leader providing compressed air and vacuum solutions since 1965. Zorn offers compressors and vacuum pumps from high quality manufacturers, as well as custom turn-key installations, equipment service, parts, lubricants, rentals and system audits to customers from printing plant and hospitals to dairies and component manufacturers.

Scholarship Program



Thank you to our WAAE Corporate Sponsors and Members!

Since 2010, 94 students representing 13 different Wisconsin colleges and universities have received \$100,000 in scholarships funds.

The WAAE scholarship program was developed to financially support students pursuing engineering, business and technical careers with emphasis on energy efficiency, energy management, energy conservation, renewable energy, energy generation, applied equipment design, energy system operation or other energy related fields. It provides students opportunities to meet other professionals working in energy careers and to see the wide variety of careers available to them, along with providing WAAE members opportunities to meet students who may be seeking an internship or employment in the future.

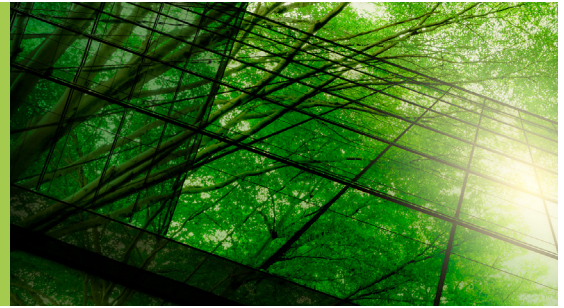
Scholarship Awards

Year	Amount	Number of Scholarships
2010	\$2,500	5
2011	\$3,000	4
2012	\$4,500	7
2013	\$4,750	5
2014	\$7,050	7
2015	\$8,000	9
2016	\$10,000	10
2017	\$9,500	6
2018	\$11,500	9
2019	\$12,500	9
2020	\$12,500	12
2021	\$14,200	11
2022	\$15,000	TBD
TOTAL	\$ 115,000	94+



CEU/PDH Certificates
are available at the registration
desk after 4 pm

Thank you to WAEE Corporate Sponsors



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