



2024 Minnesota Energy Expo
 Tuesday, October 29th, 2024
 Delta Hotel Minneapolis Northeast
 1330 Industrial Blvd NE, Minneapolis, Minnesota



2024 Minnesota Energy Expo



Time	Session	
7:00 - 8:00a	Exhibitor Setup & Registration	
8:00 - 9:00a	Breakfast	
8:15 - 8:45a	AEE & ASHRAE Presidents' Welcome Jane Opoien, President MN ASHRAE Michelle Gage, President AEE-Twin Cities Keynote: Federal and International Energy Policy Landscape Eric Oliver, AEE President Emeritus	
	Track 1	Track 2
9:00 - 10:00a	Next Gen RTUs: Energy Efficiency Performance and Potential Leah Guenter, CEE Grant Baumgardner, CEE	How to Finance C&I projects in MN through IRA, IIJA, and MnCIFA Pete Klein, Minnesota Climate Innovation Finance Authority (MnCIFA) Monte Hilleman, Sustainable Investment Group
10:00 - 10:30a	Break	
10:30 - 11:30a	MN Energy Code Updates Javier Navar Payan, Efficiency Commissioning Pam Jergenson, Braun Intertec Corp.	Business Under Pressure: Providing Relief through Cost Reductions Greg Shipp, Xcel Energy
11:30a - 1:30p	Lunch Keynote: Large Data Centers - Panel Moderator: Eric Oliver, AEE President Emeritus, Association of Energy Engineers Colleen Eddy, Metro Regional Business Development Manager, MN DEED Kyle Leier, Manager Resource Strategy & Development, Great River Energy Jake Graff, President North Region, Cordia Energy	
1:30 - 2:30p	The Path to Decarbonization for Commercial HVAC Systems Jeff Seewald, Daikin Applied	Peak Shave and Time of Use Programs - Panel Moderator: Carl Samuelson, Michaels Energy Joe Krekeler, University of Minnesota Angela Vreeland, St. Paul Public Schools Bella Halstead, Xcel Energy
2:30 - 3:00p	Break	
3:00 - 4:00p	Technology Case Studies Moderator: Javier Navar Payan, Efficiency Commissioning FLOW Environmental Systems - Heat Pumps Mojave Energy Systems - RTUs Mulcahy Co. - EC Motors Darcy Solutions - Geothermal	Implementation of Utility Energy Efficiency Programs Tanuj Gulati, Frontier Energy

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Morning Keynote

Morning Keynote: Federal and International Energy Policy Landscape



Against the backdrop of an upcoming election, let's dive into a discussion of existing and potential Federal Energy Policy, and where it may lead us. We'll take a look at what's worked, what hasn't worked, and some of the best ideas going forward.

Eric Oliver, Director Governmental Affairs, Association of Energy Engineers
AEE President, Emeritus

A passionate energy conservationist, Eric Oliver started his career with the federal government in EPA's Energy Star Buildings Program. Prior to joining 2RW in 2018, Eric served as VP, Energy Services at InScope Innovation. Eric founded EMO Energy Solutions in 1998 to address the growing need for energy efficiency services and ran the Company for 19 years until 2017. With EMO, Eric was among the earliest practitioners of the LEED program, providing energy modeling, commissioning, and LEED consulting services in addition to energy auditing capabilities. Mr. Oliver has conducted several dozen energy-training seminars, created energy awareness and education campaigns, and presented and moderated at several energy conferences.

Mr. Oliver holds a master's degree in building technology and a Bachelor of Architecture from MIT. A licensed professional engineer in Virginia and Maryland, he is a former President of the National Capitol Chapter and national Secretary of the Association of Energy Engineers (AEE), has served on the Board of Directors of the National Capitol Region Chapter of the US Green Buildings Council (USGBC-NCR), and is a former Board Chairman of the Virginia Sustainable Building Network (VSBN).

Lunch Keynote

Lunch Keynote: Large Data Centers – Panel

The artificial intelligence boom has left big tech companies scrambling to find large amounts of energy to power data centers. Large data centers, also known as hyperscale data centers, are massive facilities that house IT equipment for cloud services providers, cryptocurrency mining, and most recently artificial intelligence data processing. These large data centers can cover millions of square feet, consume as much electricity as a city, and generally require high security. These facilities are often owned by large companies like Amazon, Google, Meta, IBM, and Microsoft. Join us in exploring a conversation on how Minnesota partners can attract and serve these facilities.

Moderator: Eric Oliver, AEE President Emeritus, Association of Energy Engineers



Colleen Eddy, Metro Regional Business Development Manager, Minnesota Department of Education and Economic Development (DEED)

Colleen leads the Data Center Industry Sector for the state of MN and has over 10 years' experience in the data center industry. As a Business Development Manager, Colleen works with businesses on expansion projects, she promotes the state for business attraction, and attends various industry sector conferences. Before joining DEED, Colleen worked in economic development for the city of Elk River, where she was instrumental in advancing several expansions which in turn increased the economic vitality of the community.



Kyle Leier, Manager Resource Strategy & Development, Great River Energy

Kyle plays a critical role in shaping the future of power supply at Great River Energy. With over 20 years of experience at GRE, Kyle's expertise spans the design and management of complex power plant systems, including control system integration and turbine and generator replacements. He also develops models for market dispatch and generation optimization. In his current position, Kyle assists with regulatory compliance and has testified as a technical expert on behalf of GRE at both state and federal levels. He serves as a program chair for several research initiatives at the Electric Power Research Institute (EPRI)

and leads GRE's forecasting and capacity expansion modeling for the development of its integrated resource plans. Kyle holds a degree in Mechanical Engineering from the University of Minnesota. He currently resides in Minneapolis with his wife and three children.



Jake Graff P.E., President North Region, Cordia Energy

Jake has ascended through the ranks since joining Cordia in 2018 as a Production Manager, showcasing his leadership and expertise. Previously, he worked at Xcel Energy, progressing from an Engineering Intern to a Principal Engineer. In his current role, Jacob oversees sales and operations for Cordia's Energy Center Minneapolis, which has served the city for over 50 years. He manages complex systems catering to diverse industries, from sports stadiums to healthcare and governmental buildings. Jake is committed to community service and shaping policies that advance sustainable energy practices by actively participating on boards like the

Minneapolis Downtown Council and the City of Minneapolis's Climate Equity Plan Energy subcommittee. Additionally, Jake coaches youth sports for the Minneapolis Parks and Recreation Board. Jake holds a degree in Mechanical Engineering from South Dakota State University.

Track 1

2024 Commercial MN Energy Code: Updates in MEP and Enclosure Commissioning Compliance

This presentation equips designers, engineers, and project managers with crucial insights into how the NEW 2024 MN Commercial Energy Code will impact their work. Effective January 5, 2024, the updated code incorporates ANSI/ASHRAE/IES 90.1-2019 with important amendments specific to Minnesota. For buildings permitted after the effective date, the impact on MEP systems and enclosures has been both substantial and immediate; some municipalities are already enforcing compliance with the new code before issuing construction permits. Understanding these requirements early in the design phase is vital. By the end of the session, attendees will have the actionable knowledge needed to verify compliance and optimize building performance in their future projects.



Javier Navar Payan, Founder, Efficiency Commissioning LLC.

Javier is a seasoned expert in building systems commissioning and energy efficiency. Prior to founding Efficiency Commissioning LLC, Javier was a Senior Energy Engineer at the UMN, working as an in-house commissioning provider. Javier is an advocate for energy efficiency and sustainability and has a passion for making buildings work to their full potential. Javier has extensive experience with ASHRAE, one of the organizations that produced the 90.1 2019 standard, which forms the basis for the 2024 MN Energy Code. He worked with ASHRAE as Team Leader for the development of the Building Commissioning Professional Certification (BCxP) Study Guide and is currently a member of the ASHRAE BCxP Exam Subcommittee, serving 2022-2025. Additionally, he assisted in the creation of ASHRAE's new decarbonization professional certification exam.



Pam Jergenson, Principal Consultant & BECx Technical Manager, Building Sciences Group, Braun Intertec Corp.

Pam is an accredited Building Enclosure Commissioning Agent and Process Provider who has worked in the construction industry focusing on building enclosures for over the last 30 years. Pam's work includes writing and updating building enclosure design standards for the State of Minnesota Real Estate Construction Services and the Minnesota State Colleges and Universities. She is a trained whole building airtightness technician, a licensed air barrier field auditor, and a certified construction document technologist, specification writer, and construction contract administrator. Her portfolio of work includes the sectors of commercial, hospitals, multi-family, higher education, K-12, federal, state, county, and city governments,

and private businesses.

The Path to Decarbonization for Commercial HVAC Systems

Learn how decarbonization will impact buildings and shape commercial applied HVAC systems and explore potential solutions for today and beyond. This presentation will provide an overview of the regulatory and social drivers behind decarbonization, and discuss HVAC technology trends, strategies, potential solutions, and considerations for our path to electrified, low-to-zero emissions buildings.



Jeff Seewald, P.E., CEM, HVAC Systems Business Development Manager, Daikin Applied

Jeff brings an informed and balanced perspective to the challenges faced by key stakeholders throughout the building lifecycle, including engineers, contractors, facility managers, and owners. With more than 30 years of experience in building systems and energy engineering in the HVAC, building automation and controls, lighting, and electric vehicle charging arenas. At Daikin Applied, Jeff is responsible for the development and dissemination of HVAC systems applications concepts, approaches and technical know-how to address facilities challenges and elevate the performance of buildings, with benefits that include increased energy efficiency, reduced emissions, enhanced indoor environmental quality, and infrastructure renewal. Jeff earned his Bachelor of Science in Mechanical Engineering from Pennsylvania State University.

Next Gen RTUs: Energy Efficiency Performance and Potential

Rooftop Units (RTUs) are the most common commercial HVAC system, serving 80% of Minnesota commercial building stock and consuming 60% of the total energy used in commercial buildings! Yet, efficiency gains have been minimal, especially on the heating side, which has remained at 80% efficient for the last 30 years. Minnesota's cold winters and humid summers create unique challenges and opportunities for RTU efficiency. Next Gen RTUs, defined as RTUs utilizing either dual fuel heat pump RTUs, energy recovery ventilators (ERVs), or both heat pumps and ERVs, provide energy and emissions savings while keeping Minnesotans comfortable in all seasons. This session will walk through real-world case studies of Next Gen RTUs on commercial buildings, as well as models of the energy and bill impacts. These case studies will highlight the performance of these units in the field and the impacts of various control settings such as switchover temperature. This session will also provide an overview of the market landscape for Next Gen RTUs, and next steps for implementation of these efficient technologies.



Leah Guenter, Initiative Manager – Next Gen Rooftop Units, Center for Energy and Environment

Leah manages the Next Gen RTU initiative, which works to accelerate the adoption of efficient RTU technology. The Next Gen RTU Initiative is part of Minnesota's Efficient Technology Accelerator, a statewide market transformation effort funded by Minnesota's investor-owned utilities. Through pilot studies, training, and market actor engagement the Next Gen RTU program works to increase the adoption of dual fuel heat pump RTUs and energy recovery ventilators for light commercial RTUs.

Prior to working at CEE, Leah worked in commercial construction, both in the role of owners representative and general contractor. She worked with both existing and ground-up construction. She has a BS in structural engineering from Jacobs School of Engineering at UC San Diego.



Grant Baumgardner P.E., Research Engineer, Center for Energy and Environment

As a research engineer, Grant conducts research on emerging technologies in residential and commercial HVAC systems, with a focus on identifying technologies with the greatest potential for reducing the energy intensity of the built environment. Prior to joining CEE, Grant worked for six years in commercial HVAC and transport refrigeration product development. Grant conducted thermal systems analysis, built machine learning models, defined product application requirements, designed control algorithms, and developed rapid control prototyping techniques. Grant has a BS in mechanical engineering from Virginia Tech and an MS in mechanical engineering from Purdue University.

Technology Case Studies

Join us for short product pitches spanning a variety of technologies and applications.

Mojave Energy Systems

Discover how modern energy-efficient buildings can overcome the challenges of humidity control by utilizing the Mojave ArctiDry liquid desiccant DOAS. Create sustainable buildings with a DOAS that delivers low dew points while using half the energy of conventional products.



Zachary Jenkins, Regional Sales Manager, Mojave Energy Systems

Zachary is a career HVAC-R professional holding positions in engineering and sales with some of the leading suppliers in the industry. He spear-headed the redesign of a massive product line for the reach-in market, providing higher efficiency systems that help customers meet DOE and EPA regulations. I've also been integral in solutions selling higher value products to key OEMs. He is experienced with web communications and promotion building a large audience and working with one of the largest media companies in the world. Zachary holds a Bachelor of Science in Mechanical Engineering and a Master of Business Administration from Wright State University.

FLOW Environmental Systems

Not all heat pumps are created equal; it's essential to evaluate not only their environmental impact but also their compatibility with existing electrical infrastructure, performance in cold climates, defrost cycles, and the ability to achieve high delivery temperatures for replacing natural gas-based systems.



Sean Jarvie, Chief Technology Officer, FLOW Environmental Systems

Sean is a technical leader and innovative problem solver, driven by his passion for creating a better world for future generations through clean technology and environmental stewardship. With 20 years of experience working for OEMs of all sizes, Sean has developed a unique perspective and deep understanding of the HVAC and Refrigeration industries. He is an engineer and a hands-on practitioner with experience in laboratory and field service. Sean is a strong advocate for innovation, efficiency, and sustainability. He is committed to helping organizations achieve their goals while minimizing environmental impact. His technical expertise and practical knowledge enable him to lead and inspire others in the industry.

Beyond professional pursuits, Sean loves spending time with his wife and two amazing children, working on his personal permaculture retreat, hiking, and sharing meals with friends and family.

Darcy Solutions

Groundwater based geothermal systems providing energy efficient heating and cooling for buildings of all kinds. The company is focused on applying the science behind hydrogeology to materially improve the health of our communities and planet by deploying geothermal.



Robert Ed, Director of Strategic Marketing, Darcy Solutions

Robert is responsible for commercialization of the technology and scaling the business. He was most recently leading strategy and marketing for an industry leading solar photovoltaic organization and has many years of experience in renewable energy and climate tech. Robert is very passionate about solving the climate crisis and improving the economy simultaneously by deploying existing technology. He joined Darcy to focus specifically on the challenge of decarbonizing buildings. His educational background includes an BS in business and communications and an MBA from the University of Minnesota.

Mulcahy Company



Dan Chudecke, Director of Business Development, Mulcahy Company

Dan has worked at Mulcahy Company since 1993 and is currently the Director of Business Development. Dan is a past president of the Minnesota Chapter of ASHRAE, serves on Technical Committee 6.1 and is currently part of the Membership Promotion Executive Committee. He has presented many seminars to ASHRAE, ASPE, and NEBB and served on numerous advisory committees.

Track 2

How to Finance C&I projects in Minnesota through IRA, IIJA, and MnCIFA

Mr. Klein and Mr. Hilleman will share innovative approaches to stack, model and monetize multiple green finance strategies for new construction or retrofit projects across building types and ownership profiles. Attendees can learn about some of the freshest tools from the Inflation Reduction Act, such as the Investment Tax Credit for ground source heat pumps and solar, Home Energy Rebates, the 45L tax credit for multi-family projects and much more.



Peter M. Klein, Executive Director, Minnesota Climate Innovation Finance Authority (MnCIFA)

Peter has issued over one billion dollars of bonds to fund various projects for public and private sector entities. In his 27 years at the Saint Paul Port Authority, he created two energy loan programs that are national models. The Trillion BTU Revolving Loan Fund and MinnPACE have been highlighted by the US Department of Energy and Lawrence Berkley National Labs as examples of what every state should be doing to implement more energy related projects. He is the recipient of several national awards including the 2023 PACENation Lifetime Achievement Award – the first recipient of this recognition.



Monte Hilleman, Vice President of Environmental Resiliency Compliance & Investment, Sustainable Investment Group (SIG)

Monte oversees market-based strategies to finance decarbonization efforts. Within SIG, he directs a range of offerings, including Net Zero Proformas and Portfolio analysis, Green Financing tools, and transactions involving Renewable Energy Credits and Carbon Offsets. These initiatives are supported by his extensive knowledge of financial incentives such as the Inflation Reduction Act, Property Assessed Clean Energy Financing (PACE), and various other federal, state, and local green finance incentives.

Prior to joining SIG, Hilleman spent almost two decades leading the sustainable development mission of the Saint Paul Port Authority. His exceptional work in this role earned him industry accolades, such as being recognized as the Person of the Year by Brownfield Renewal Magazine and inclusion in the Twin Cities Business Journal's Forty Under 40 list.

As the leader of 'The Heights' development, Hilleman orchestrated the transformation of a contaminated 112-acre golf course into a Net Zero Energy community. The projects he oversaw encompassed over 200 acres of land and received over \$125 million in public sector investment and over \$1.5 billion in private investment. Monte's expertise has led him to become a recurring lecturer for numerous educational and industry associations. Additionally, he holds a license as a MN Commercial Real Estate Broker.

Business Under Pressure: Providing Relief through Cost Reductions

Energy efficiency can help preserve cash flow, improve operations and business performance. Do you have energy reports and facility assessments on the shelf? Empower Facilities is a new level of regulated service from Xcel Energy that delivers an actionable scope of work that includes bids, financing options, project management and can be added to your bill! No Xcel Energy? No problem, we can serve your non-Xcel Energy sites as well.



Greg Shipp, Commercialization Manager, Xcel Energy

Greg joined Xcel Energy in 2021 and is currently leading Empower Facilities - a new level of service designed to deliver on-site energy efficiency projects for C&I customers. A recovering engineer who has spent more than 20 years marketing and developing new products and business models, he lives in St. Paul and can be found on the curling sheet or golf course, seasonally.

Peak Shave and Time of Use Programs - Panel

Did you know When and Where electricity is used greatly impacts costs, grid stability, and carbon emissions? As renewable energy generation and electricity demand grow, the peaks (generally late summer afternoons) stretch the grid's capacity and contribute an out-sized portion of carbon emissions.

Building operators can help reduce those peaks by participating in Demand Management or Demand Response programs. In these programs, customers agree to reduce load at critical times in exchange for a financial incentive or preferred rate. In this panel we will provide an overview of demand management programs – why they matter, what their impact is on the grid and on day-to-day operations. We'll hear from facility management and utility staff about their experience managing demand and learn from them about what works and doesn't work.



Moderator: Carl Samuelson, C.E.M, Associate Director of Strategy, Michaels Energy

Carl has 16 years of experience in energy efficiency and is a Certified Energy Manager. Over his career, he has developed an ability to clearly communicate technical information in an engaging manner. He works closely with both end-users and utilities to develop and implement solutions that meet their business needs - strategic energy management, business energy efficiency programs, research, marketing, recruitment, and program design. Carl holds a B.A. in Political Science from St. Olaf College, and is a graduate of Green Corps, the national field school for environmental organizing. He is currently completing an MBA from the University of Wisconsin MBA Consortium. He serves as a board member to the Midwest Energy Efficiency Alliance (MEEA).



Joe Krekeler, University of Minnesota

Joe is the Principal Conservation Engineering Supervisor at the University of Minnesota, with nearly 20 years of experience in the energy industry. He specializes in energy efficiency, demand response, and recommissioning, with a focus on sustainable energy solutions. Joe developed and manages the University's demand response program, playing a key role in optimizing energy use across the campus. He holds a bachelor's degree in mechanical engineering from the University of Minnesota and is a licensed Professional Engineer.



Bella Halstead, Account Manager, Xcel Energy

Bella Halstead has worked at Xcel Energy for the past six years, contributing her expertise across various departments. She began her journey with the HomeSmart program, assisting residential customers, and later transitioned to roles in energy efficiency and demand management, where she worked closely with commercial accounts. Currently, Bella is part of the Account Management team, where she supports Xcel Energy's largest commercial customers in achieving their energy efficiency and sustainability objectives.

Bella holds a degree from the University of Minnesota, Twin Cities. Outside of her professional endeavors, she enjoys cooking, traveling, and lifting weights.



Angela Vreeland, P.E., Indoor Air Quality/Energy Coordinator, Saint Paul Public Schools

Angela works in the Environmental Services Group within the Facilities Department at Saint Paul Public Schools. She is responsible for Indoor Air Quality (IAQ) testing and monitoring and oversees an IAQ testing and balancing program. She also tracks energy use, co-chairs the District Energy Action Team, and implements energy reduction projects. She has a Bachelor's Degree in Mechanical Engineering and a Master's Degree in Natural Resources, Science, and Management.

Implementation of Utility Energy Efficiency Programs

Frontier Energy facilitates many utility programs for Xcel Energy, CenterPoint Energy, Minnesota Power, among others. Come learn more about NESP, LIRE, Minnesota Green Cost Share, NGEA, MFBE, EATs, and Minnesota Grant capacity Funds.



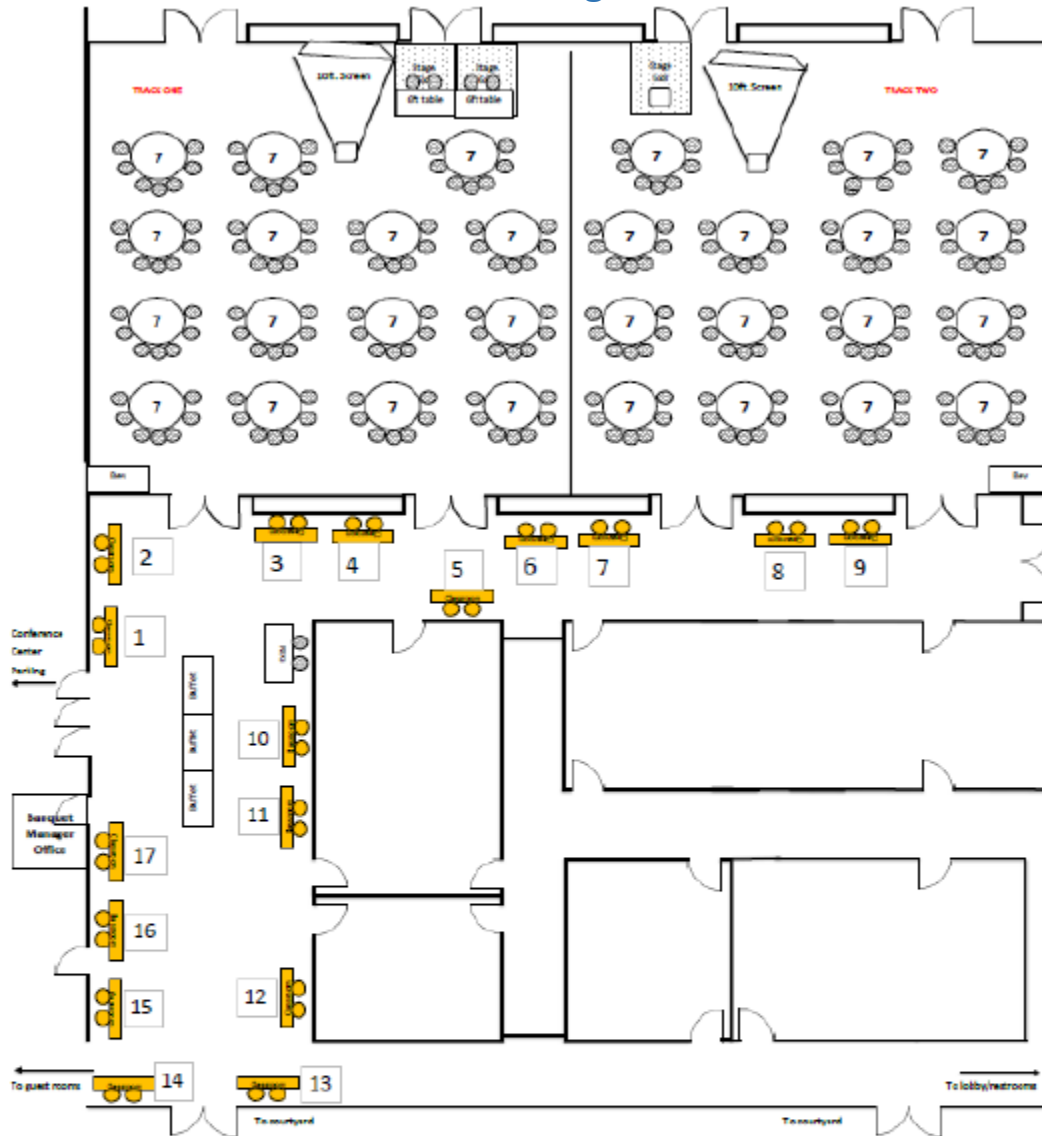
Tanuj Gulati, Sr. Engineering Manager, Frontier Energy

Tanuj Gulati works with customers and utilities to integrate new technologies and innovative energy saving designs into commercial-industrial facilities. He is a trusted, articulate expert in lighting redesign, HVAC, compressed air systems, refrigeration systems, controls, benchmarking, and process improvements in industrial systems. His experience includes thousands of ASHRAE energy audits for businesses and organizations of all sizes. Recognized as an "Energy Innovator of the Year" by the Association of Energy Engineers and one of Midwest Energy News magazine's "40 Under 40" in 2016, Tanuj assists businesses in making cost-effective, energy efficient choices that

fit their needs. Tanuj is a lifelong learner who continually strives for personal and professional excellence—a quality well illustrated by his growing list of professional awards and credentials.



Exhibitor Listing & Floor Plan



Booth	Exhibitor	Booth	Exhibitor
1	Xcel Energy	REG	Registration
2	Trane	10	TMS Johnson
3	SES	11	Midwest Mechanical Solutions
4	ArKco Sales, Inc	12	Mulcahy Company
5	Hemco	13	Pump and Meter Services Inc.
6	Braun Intertec	14	RuppAir
7	Efficiency Commissioning LLC	15	SVL
8	Integrated Environmental Solutions Ltd.	16	LiquidCool Solutions
9	Willdan	17	Windsor Engineers