Final Program

2023 MEGA Symposium
Electric Power Transformation
Energy, Environment, Policy, Technology
September 26-27, 2023 • Pittsburgh, PA

SPONSORED BY:

Civil & Environmental Consultants, Inc.
Edison Electric Institute
Ramboll
Carnegie Mellon University

www.awma.org/MEGA
General Information

Conference Overview
With a 20+ year history of providing quality information, the 2023 MEGA Symposium will focus on the transition of the energy generation industry to cleaner and climate resilient electric power that can remain cost-effective and reliable. Electric power energy issues abound as the world and the industry address environmental policy challenges—climate change, air quality, waste and water policy, environmental justice, and Environmental Social Governance (ESG)—and various technology issues related to energy production and delivery, including the latest cutting-edge options. The conference will provide technical information, solutions, and insights on policy developments; methods for managing compliance; and new technologies and environmental controls.

Conference Committee

Conference Co-Chairs
John Kinsman, Edison Electric Institute (EEI)
Jim Walker, Consumers Energy

Technical Committee
Pete Belmonte, Quanta Infrastructure Solutions Group
Amanda Black, Civil & Environmental Consultants, Inc.
Leah Blinn, Civil & Environmental Consultants, Inc.
Wilma Dreessen, Chevron
Joe Duckett, EJD Consulting
Jordan Haywood, Siemens Energy, Inc.
Gary Helm, PJM Interconnection
Jason Krawczyk, Eli Lilly & Company

Location
Sheraton Pittsburgh Hotel at Station Square
300 West Station Square Drive
Pittsburgh, PA 15219   Phone: (412) 261-2000

Presenter Details
All presenters should bring their presentation on a flash drive and load onto the laptop the morning before their session, or during the lunch break. Presenters should report to their presentation room at least 15 minutes prior to their session.

Registration and Refund Policy

Register online at www.awma.org/MEGA. Online registrants will receive a confirmation and receipt, which they can access at any time by logging into their account. Your registration will not be processed without payment.

Onsite registration will be located in the 2nd Floor Foyer and will be open during the following hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Tuesday, September 26</td>
<td>7:00 am – 5:00 pm</td>
</tr>
<tr>
<td>Wednesday, September 27</td>
<td>7:00 am – 3:00 pm</td>
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If written notice of cancellation is received on or before August 28, 2023 payment will be refunded, less a $100 cancellation fee. (Cancellation fees apply regardless of payment method). Substitutions may be made at any time; payment for any difference is due at the time of substitution. This refund policy applies to all occurrences, including weather-related events and other natural disasters. In the unlikely occurrence of event cancellation, the Association is not liable for any expenses incurred by the registrant other than the full refund of registration fee(s) paid.

Conference Proceedings
Conference proceedings will include the secured PDF copies of the slides from presenters who have provided permission. The online proceedings will be posted a few weeks following the conference and attendees will be notified when the slides have been posted to a password-protected website.

Continuing Education Credits
Conference attendees may be eligible for continuing education credits and can apply to receive a Certificate of Participation for the sessions attended. Please sign the CEU sign-in sheet available at the registration desk and order your Certificate through the A&WMA Online Store. Members are eligible for free certificates. For more information, please contact Gloria Henning at +1-412-904-6021 or glhenning@awma.org.

Special Accommodations
The Air & Waste Management Association supports the Americans with Disabilities Act (ADA). Those attendees requiring specific equipment, food, or services should contact Cindy Fontanesi at cfontanesi@awma.org to make those needs known in advance. A&WMA will make every reasonable effort to accommodate them.

About the Air & Waste Management Association
A&WMA is a not-for-profit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking opportunities, public education, and outreach to more than 5,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society. For more information, please visit www.awma.org.
Thank you to our sponsors!

Gold Sponsor

Civil & Environmental Consultants, Inc.

Whether gathering field data; preparing plans and permit applications; performing site investigations, feasibility evaluations, and remediation activities; or navigating compliance requirements, CEC seeks to build personal business relationships to better understand our clients' objectives. Let's talk about your most complex air quality and waste management challenges. Visit www.cecinc.com for info.

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The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for nearly 250 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 70 international electric companies as International Members, and hundreds of industry suppliers and related organizations as Associate Members. Visit www.eei.org.

Bronze Sponsor

Carnegie Mellon University is known for world-class, interdisciplinary educational and research programs in environmental engineering, science, and policy and is home to the Steinbrenner Institute for Environmental Education and Research and the Scott Institute for Energy Innovation. Visit www.cmu.edu/epp.

Visit our tabletop exhibitors!

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TECHNICAL AGENDA – Tuesday, September 26

Opening Plenary Session

8:00 am – 9:30 am
Brighton

Welcome and Introduction

Lindsay Baxter
Manager, Regulatory and Clean Energy Strategy, Duquesne Light

John Walliser, Senior Vice President, Legal and Government Affairs, Pennsylvania Environmental Council

Rich Fitzgerald
Allegheny County Executive

9:30 am – 9:45 am
Networking Break – Woodlawn

Session 1A: Climate Change Policy

Pointview

Chairs: Eric Holdsworth, EEI, Gary Helm, PJM Interconnection

9:45 am – 10:10 am
The Electric Power Sector: Leading the Clean Energy Transition
Eric Holdsworth, Edison Electric Institute

10:10 am – 10:35 am
Navigating the Tsunami of Energy and Climate Policy Towards a Safe, Clean and Reliable Energy System
Franz Litz, Litz Energy Strategies LLC

10:35 am – 11:00 am
Mark Peak, Mitsubishi Power; Ladislav Vesely, University of Central Florida

11:00 am – 11:25 am
The Decarbonization Challenge: Electrification, Hydrogen, and Other Solutions
Justin Schnegelberger, Burns & McDonnell

11:25 am – 11:50 am
Technical Pathways to Decarbonize Electricity Systems
Dr. Ramteen Sioshansi, Carnegie Mellon University

Session 1B: Power Generation Technologies

Brighton

Chair: Peter Belmonte, Quanta Infrastructure Solutions Group, Amanda Black, Civil & Environmental Consultants, Inc.

9:45 am – 10:10 am
Microreactors for Distributed Generation and Industry
Michael Valore, Westinghouse Electric Company

10:10 am – 10:35 am
Biogas Electric Power – Renewal of a Renewable
Jeffrey Pierce, SCS Energy/SCS Engineers

10:35 am – 11:00 am
The Marginal Carbon Reductions Tool (MaCRe)
Carlos Manuel Ciudad-Real, Ramboll

11:00 am – 11:25 am
Fuel Cell Technology: Serving Customers Worldwide with Sustainable Products
Jetson Juopperi, Fuel Cell Energy

12:00 pm – 1:00 pm
Lunch for all attendees – Ellwood
TECHNICAL AGENDA – Tuesday, September 26, con’t.

Session 2A: ESG Disclosure

Pointview

Chairs: Jim Walker, Consumers Energy, Joe Duckett, EJD Consulting

1:00 pm – 1:25 pm  
The Journey to Sustainability  
Lori Burkert, PPL Electric Utilities

1:25 pm – 1:50 pm  
The Role of Info Tech in ESG Disclosure  
Ram Ramanan, Copperwire

1:50 pm – 2:15 pm  
A Transition from ESG and ESJG: The Nexus of Climate, Energy, and Justice  
Courtney Taylor, Ramboll US Consulting

2:15 pm – 2:40 pm  
Disclosure of Climate-Related Risks & Opportunities by U.S. Energy Generation Companies  
Kristian Macoskey, Civil & Environmental Consultants, Inc.

2:40 pm – 3:05 pm  
ISSB, TCFD, and the Beginnings of ESG Reporting Consolidation  
Kerry Weichsel, Iconic Air

3:05 pm – 3:15 pm  Networking Break, Woodlawn

Session 3A: CAA Regulation

Pointview

Chairs: Amanda Black, Civil & Environmental Consultants, Inc, John Kinsman, Edison Electric Institute

3:15 pm – 3:40 pm  
2023 Air Quality Regulatory Update for the Electric Power Industry  
Adam Driscoll, Barr Engineering Co.

3:40 pm – 4:05 pm  
EPA Reduction of the Primary Annual PM2.5 Standard  
Leah Blinn, Civil & Environmental Consultants, Inc.

4:05 pm – 4:30 pm  
Electric Utility Industry Progress and Regulatory Activity  
John Kinsman, Edison Electric Institute

4:30 pm – 4:55 pm  
Low-Level Formaldehyde FTIR Testing at Combustion Turbines  
Eric White, TRC

Session 2B: Reliability—ISO/RTO Perspectives Panel

Brighton

1:00 pm – 3:00 pm  
Moderator: Gary Helm, PJM Interconnection

ISOs and RTOs are critical stakeholders in the major changes the U.S. electric grid is undergoing. Driving the course of future change are energy generation technologies and efficiency options, their capabilities, and costs, state/federal legislation and rules, and research on technologies. In parallel, flexibility, affordability and reliability of the electric grid remain crucial. This panel will address aspects of a reliable energy transition from the ISO/RTO perspective. Panelists include:

- Casey Cathey, Senior Director, Grid Asset Utilization, Southwest Power Pool
- Natalie Furtaw, Senior Engineer, Applied Innovation, PJM Interconnection
- Quintin Thompson, Policy Studies Planner, Midcontinent Independent System Operator

3:05 pm – 3:15 pm  Networking Break, Woodlawn

Session 3B: Carbon Capture and Storage

Brighton

Chairs: Jim Walker, Consumers Energy, Wilma Dreessen, Chevron

3:15 pm – 3:40 pm  
Can Advanced Technologies Accelerate CCS Deployment?  
Edward S. Rubin, Department of Engineering and Public Policy, Carnegie Mellon University

3:40 pm – 4:05 pm  
Carbon Capture Technologies: Status and Challenges  
Greg Hackett, National Energy Technology Laboratory

4:05 pm – 4:30 pm  
Carbon Capture & Storage (CCS) Technologies Have Significant Potential to Reduce CO2 Emissions in Energy Systems  
Justin Schnegelberger, Burns & McDonnell

4:30 pm – 4:55 pm  
Front-End Engineering Design of PZAS Carbon Capture Technology at NGCC  
Max Bernau, AECOM

5:00 pm – 6:00 pm  
Networking event for all attendees and sponsors – Fountainview
TECHNICAL AGENDA – Wednesday, September 27

8:00 am – 10:00 am
Brighton

Chairs: John Kinsman, Edison Electric Institute, and Gary Helm, PJM Interconnection

Gary Helm, Principal Energy and Environment Strategist, PJM Interconnection

Stephanie Grumet, Senior Policy Advisor, Office of Air Quality Planning and Standards, US EPA

Peter Balash, Associate Director, National Energy Technology Laboratory

M. Granger Morgan, Hamerschlag University Professor of Engineering, Carnegie Mellon University

10:00 am – 10:15 am
Networking Break – Woodlawn

Session 4A: Siting and Permitting

Chair: Leah Blinn, Civil & Environmental Consultants

10:15 am – 10:40 am
Considerations for Siting a Combined-Cycle Facility
Jennifer Flannery, Civil & Environmental Consultants, Inc.

10:40 am – 11:05 am
Innovative Air Quality Dispersion Modeling Techniques for Addressing Spatially and Temporally Varying Emissions from Offshore Wind Farm Construction and Operation Activities
Elizabeth Hendrick, Tiffanie Ramos, Ted Guertin, Jeffrey Harrington, Tetra Tech

11:05 am – 11:30 am
PM2.5 and Ozone Permit Modeling Guidance
Tony Schroeder, Trinity Consultants

11:30 am – 11:55 am
Air Permitting in a World of Green Energy Legislation
Mary Turner, Suzanne Pisano, Jen Gresh, Verdantas

10:15 am – 12:00 pm
Brighton

Moderator: Jordan Haywood, Siemens Energy

Gas turbine (GT) OEMs (Original Equipment Manufacturers) will discuss their H2 combustion technology status, the various challenges encountered, and the primary issues of concern related to this paradigm shift in electricity generation. In addition, OEM's discuss ammonia combustion, carbon capture and sequestration (CCS), proposed so-called ‘hydrogen hubs’ (H2Hubs), and potential impacts of the IRA (Inflation Reduction Act) on their operations. Speakers include:

• Gregory Chere, Sustainable Propulsion Technology Manager, Pratt & Whitney
• Andrew Dicke, Senior Environmental Engineer, GE Vernova
• Jordan Haywood, Discipline Expert, Environmental Engineering, Siemens Energy
• John Pare, General Counsel, Power Systems Manufacturing
• Mark Peak, PE, Principal Environmental Engineer, Mitsubishi Power Americas

12:00 pm – 1:00 pm
Lunch for all attendees – Ellwood
Session 5A: Environmental Justice

Pointview
Chair: John Kinsman, Edison Electric Institute

1:00 pm – 1:25 pm
Environmental Justice in 2023—Current Concepts and Practices
Carol Ann Gross-Davis, US EPA Region III

1:25 pm – 1:50 pm
Two-way Community Engagement and Adaptation to the New Paradigm
Courtney Taylor, Mikhil Shetty, Ramboll US Consulting

1:50 pm – 2:15 pm
Comparative Review of State-Level Actions
Adam Driscoll, Barr Engineering

2:15 pm – 2:40 pm
Tonawanda Tomorrow: An Example of Environmental Justice and the Just Transition to Alternative Electricity
Tom Morahan, egroup

2:40 pm – 2:50 pm
Networking Break – Woodlawn

Session 5B: Transportation

Brighton
Chairs: Joe Duckett, EJD Consulting, Leah Blinn, Civil & Environmental Consultants

1:00 pm – 1:25 pm
Key Building Blocks of Enabling Electrification
Alan Michel, First Energy Corp.

1:25 pm – 1:50 pm
Impact of Increased EVs on the Power Industry
Paulina Jaramillo, Carnegie Mellon University

1:50 pm – 2:15 pm
Integrated Model for Assessment and Projection of Carbon Emissions from Transport Sector
M. Hashim Pashtun, Ohio Research Institute for Transportation & Environment

Session 6A: Waste and Water

Pointview
Chairs: Jim Walker, Consumers Energy, Wilma Dreessen, Chevron

2:50 pm – 3:15 pm
Resource Conservation and Recovery Act (RCRA) Coal Combustion Residuals (CCR) – Looking Ahead by Looking to the Past
Dan Chartier, Utility Solid Waste Activities Group (USWAG)

3:15 pm – 3:40 pm
ELG Revisions – 2023 Edition
Bryan Hansen, Jason Eichenberger, Doug Randall, Burns & McDonnell

3:40 pm – 4:05 pm
How Climate Change Affects Power Plant Cooling Water
Paulina Jaramillo, Carnegie Mellon University

4:05 pm – 4:30 pm
Insights from Disposing Cooling Tower and WFGD Blowdown Wastewater through Spray Injection into Hot Flue Gas: Lessons Learned
Ashwin Patni, Lechler USA

4:30 pm – 4:55 pm
Underground Injection Disposal Technology
Bill Dawson, Buckeye Brine

Session 6B: Air Emissions Controls

Brighton
Chair: Pete Belmonte, Quanta Infrastructure Solutions Group

2:50 pm – 3:15 pm
Renewal and Optimization of the Big Rivers Electric Co. Coleman Station WFGD Scrubber Relocation to D.B. Wilson Station
Aydra Kalynchuk, Wheelabrator Air Pollution Control, Jason Burden, Bill MacIntyre, Big Rivers Electric Corporation

3:15 pm – 3:40 pm
Ever Increasing Challenges for Meeting Tougher Emissions on CCGT’s – What We Must Do
Wayne Jones, Umicore Catalyst USA, LLC

3:40 pm – 4:05 pm
Case Study: Conversion of Anhydrous to Aqueous Ammonia for Coal-Fired Boiler SCR
Jeffrey Shellenberger, Scott Yarbrough, Scott Kafesjian, Quinn Kotter, Richard Barton, Wheelabrator Air Pollution Control

4:05 pm – 4:30 pm
Full Decarbonization of Installed Gas Turbine Power Plants – A Demand Solution for Emerging Clean Hydrogen Supply at Scale
Brian Micklos, PSM – a Hanwha Company

4:30 pm – 4:55 pm
Transforming Aging Power Plants
Pete Belmonte, Quanta Infrastructure Solutions Group
THANK YOU FOR ATTENDING!

UPCOMING A&WMA CONFERENCES

**Environmental Justice: From Policy to Practice**  
October 23-24, 2023 • Arlington, VA  
Make your plans to attend this inaugural conference at www.awma.org/EJ.

**Air Quality Measurement Methods and Technology**  
November 14-16, 2023 • Durham, NC  
Register by October 17 to save at www.awma.org/measurements.

**48th Annual A&WMA Air Information Exchange**  
December 6-7, 2023 • Durham, NC  
Learn more about the program at www.awma.org/infoexchange

**The Science of PFAS: Chipping Away at the Details**  
January 23-25, 2024 • Raleigh, NC  
Find more information about the conference at www.awma.org/PFAS.

**Odour Management: Embracing Global Perspectives**  
May 14-16, 2024 • Toronto, ON  
Submit an abstract by November 30 at www.awma.org/odourconference

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