



ENV•VISION

Environmental Vision - An International Electricity Sector Conference

By: Electric Power Research Institute

2015 Event Hosted by: Air & Waste Management Association (A&WMA)

May 12-14, 2015

Doubletree Hilton • Crystal City, Virginia



Preliminary Program

About the Conference

Purpose: A premier conference to exchange research results on current and emerging issues in the electricity sector, and to develop a shared vision to address the most critical environmental and sustainability challenges through engagement of electric industry leaders, regulators, NGOs, academics, and other stakeholders.

Background: Environmental issues facing the electricity sector are changing as rapidly as the dynamic global economy and evolving regulatory policy. There is an urgent need to anticipate future environmental challenges, identify major science and technology gaps, and design a research approach to enable sustainable and cost-effective solutions to those challenges. Currently, there are no conferences that

comprehensively focus on existing and emerging challenges in the electricity sector. This conference fills that void by bringing together leaders, managers, and researchers from a broad spectrum of stakeholder groups to promote discussions and help create a roadmap for electricity sector environmental research and information needs. The main purpose of this conference is to enable high level discussion on current and future environmental challenges facing the electricity sector, identify knowledge gaps and to define research needed to solve those challenges. This conference will focus on the scientific research needs of the electricity sector; it complements the joint DOE-EPA-EPRI MEGA Symposium, held every other year, which focuses on emission control technology issues.

General Information

Registration

Visit www.awma.org/environmental-vision to register online. Three-day rates and daily rates are available. Register before March 31, 2015 for a savings of \$50-\$100!

Refund Policy

- Full refund if cancelled by April 23
- 50% refund if cancelled April 24 or later

Continuing Education Credit Opportunities

Conference attendees may be eligible for continuing education credits. For more information, please contact Gloria Henning at glhenning@awma.org or +1-412-904-6021.

Presenters' Breakfast

Presenters and Session Chairs will meet for a complimentary continental breakfast on the day of their session involvement to review program details. Presenters should bring their presentations on a memory stick/USB to this meeting, as well as a brief biography.

Conference Proceedings

Online conference proceedings will be accessible for download from the conference Web site post-event. Attendees will be notified via e-mail when the presentations are available.

Conference Committee

Conference Chair:
Naresh Kumar, EPRI

Organizing Committee:

Francisco de la Chesnaye, EPRI
Andy Coleman, EPRI
Jessica Fox, EPRI
Chris Melhorn, EPRI
Annette Rohr, EPRI
Tom Wilson, EPRI
Kent Zammit, EPRI

Americans with Disabilities Act

The Air & Waste Management Association supports the Americans with Disabilities Act (ADA). Those attendees requiring specific equipment or services should contact Carrie Hartz, Conference & Events Planner, at +1-412-904-6008 or chartz@awma.org to make those needs known in advance. We will make every reasonable effort to accommodate them.

Questions?

A&WMA Contact: Carrie Hartz, Conferences and Events Planner, +1-412-904-6008, chartz@awma.org
EPRI Contact: Dr. Naresh Kumar, +1-650-855-8758, nkumar@epri.com

Preliminary Program

Location & Lodging

DoubleTree by Hilton Washington DC-Crystal City

300 Army Navy Drive
Arlington, VA 22202
+1-800-222-TREE

Room Rate:

\$224 / room per night - Standard Room
\$269 / room per night - Jr. Suite

Hotel Reservations

A block of rooms has been reserved for conference attendees at the DoubleTree by Hilton Washington DC-Crystal City at the rate of \$224 single/double. To ensure availability, reserve your room by April 14, 2015. After that date, the reserved hotel room block is released for general sale. Make your reservations by calling the hotel directly; or visit www.awma.org/environmental-vision to make your reservation online. Be sure to reference the "A&WMA EPRI Conference" when booking your room to receive the group rate.

Getting There

The hotel is approximately 1 mile from Washington National Airport, 25 miles from Washington Dulles International Airport, and 45 miles from Baltimore/Washington International.

The hotel is located 3 blocks from the Pentagon City Metro Station, which has the yellow/blue lines going to it. Once outside the Metro entrance, go north a half block towards Army Navy Drive and the Pentagon. Make a right on Army Navy Drive and walk two and half blocks crossing S. Fern Street and S. Eads Street. The hotel will be on your right.

Other Lodging Option

Crowne Plaza Washington Natl Airport

1480 Crystal Drive
Arlington, VA 22202

Room Rate:

\$249 / room per night

A block of rooms has also been reserved for conference attendees at this hotel. Make your reservations by calling the hotel at +1-877-834-3613; or visit www.awma.org/environmental-vision to make your reservation online. Be sure to reference the Group Code "WMA" when booking your room to receive the group rate.

About the Electric Power Research Institute

The Electric Power Research Institute, Inc. (EPRI, www.epri.com) conducts research and development relating to the generation, delivery, and use of electricity for the benefit of the public. An independent, nonprofit organization, EPRI brings together its scientists and engineers as well as experts from academia and industry to help address challenges in electricity, including reliability, efficiency, affordability, health, safety, and the environment. EPRI also provides technology, policy, and economic analyses to drive long-range research and development planning, and supports research in emerging technologies. EPRI's members represent more than 90 percent of the electricity generated and delivered in the United States, and international participation extends to more than 30 countries. EPRI's principal offices and laboratories are located in Palo Alto, Calif.; Charlotte, N.C.; Knoxville, Tenn.; and Lenox, Mass.

About the Air & Waste Management Association

A&WMA is a nonprofit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for information 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.

A&WMA Federal Tax ID #: 25-6048614

Preliminary Program

Tuesday, May 12, 2015

7:30 a.m. – 5:30 p.m.

Conference Registration

7:30 a.m. – 8:30 a.m.

Presenters' Breakfast

7:30 a.m. – 8:30 a.m.

Continental Breakfast

8:30 a.m.

Introduction and Welcome

Naresh Kumar and Anda Ray, EPRI

8:40 a.m.

Keynote Plenary Panel Session: Bridging to the Future:
Meeting Today's Environmental Challenges in a
Transitioning Energy Sector

Moderator/Chair: Anda Ray, EPRI

8:40 a.m. – 10:05 a.m.

- Mike Howard, Chief Executive Officer, Electric Power Research Institute
- Craig Ivey, President, Consolidated Edison, Inc.
- Joseph Goffman, Associate Assistant Administrator & Senior Counsel, U.S. Environmental Protection Agency
- Open Q&A

10:05 a.m. – 10:35 a.m.

Coffee Service

10:35 a.m. – 12:00 p.m.

Keynote Plenary Panel Session (Continued)

- Robert Jones, Senior Advisor, Morgan Stanley
- Jonathan Pershing, Principal Deputy Director of the Office of Energy Policy and Systems Analysis, U.S. Department of Energy
- Armond Cohen, Executive Director, Clean Air Task Force
- Open Q&A

12:00 p.m. – 1:00 p.m.

Lunch

Panel Session 1a:

Future Research Directions in Air Quality

(Concurrent with Panel Sessions 1b and 1c)

Moderator/Chair: Naresh Kumar, EPRI

1:00 p.m. – 1:10 p.m.

Introduction to the Panel

Naresh Kumar, Senior Program Manager, Air Quality and Multimedia Sciences, EPRI

1:10 p.m. – 1:40 p.m.

Panelist 1

Bryan Hubbell, Senior Advisor for Science and Policy Analysis, OAQPS, U.S. EPA

1:40 p.m. – 2:10 p.m.

Panelist 2

Ted Russell, Howard T. Tellepsen Chair and Regents Professor, Georgia Institute of Technology

2:10 p.m. – 2:40 p.m.

Panelist 3

Jay Apt, Professor and Co-Director Carnegie Mellon Electricity Industry Center, Carnegie Mellon University

2:40 p.m. – 3:10 p.m.

Refreshment Break

3:10 p.m. – 3:40 p.m.

Panelist 4

John Jansen, Principal Scientist, Southern Company

3:40 p.m. – 4:10 p.m.

Panelist 5

Praveen Amar, Independent Consultant, Formerly Clean Air Task Force

4:10 p.m. – 5:00 p.m.

Open Q&A

5:30 p.m. – 7:00 p.m.

Reception

Preliminary Program

Tuesday, May 12, 2015

Panel Session 1b: Future Research Directions in Land and Water Sciences

(Concurrent with Panel Sessions 1a and 1c)

Moderator/Chair: Kent Zammit, EPRI

1:00 p.m. – 1:10 p.m.

Introduction to the Panel

Kent Zammit, Senior Program Manager,
Water and Ecosystem, EPRI

1:10 p.m. – 1:40 p.m.

The Coal Combustion Residuals Rule and Beneficial Use

Kathleen Salyer, Deputy Director, Office of Resource
Conservation and Recovery

1:40 p.m. – 2:10 p.m.

NSF Research Plans on the Energy/Water/Food Nexus

Bill Cooper, Director – Environmental Engineering Program,
National Science Foundation

2:10 p.m. – 2:40 p.m.

Threatened and Endangered Species Listings

Gina Shultz, Deputy Assistant Director, Ecological
Services, U.S. Fish and Wildlife Service

2:40 p.m. – 3:10 p.m.

Refreshment Break

3:10 p.m. – 3:40 p.m.

**Clean Water Act §316(b) Technical Implementation
Challenges and Needed R&D**

Doug Dixon, Technical Executive and Fish Protection
Program Manager, EPRI

3:40 p.m. – 4:10 p.m.

**WOTUS and Other Regulations Impacting
the Utility Industry**

Kristy Bulleit, Partner, Hunton and Williams

4:10 p.m. – 5:00 p.m.

Open Q&A

5:30 p.m. – 7:00 p.m.

Reception

Panel Session 1c: Energy and Climate Analysis – Direction of U.S. Climate Policy

(Concurrent with Panel Sessions 1a and 1b)

Moderator/Chair: Tom Wilson, EPRI

1:00 p.m. – 1:10 p.m.

Introduction to the Panel

Tom Wilson, Senior Program Manager,
Energy and Environmental Analysis, EPRI

1:10 p.m. – 1:40 p.m.

Trends in U.S. Energy and Emissions

John Conti, Assistant Administrator for Energy Analysis,
U.S. Energy Information Administration

1:40 p.m. – 2:10 p.m.

**Implications of International Policy: The U.S. and
China Climate Announcement**

Valerie J. Karplus, Director, MIT-Tsinghua China Energy
and Climate Project

2:10 p.m. – 2:40 p.m.

**Measuring the Benefits of GHG Emission Reductions:
The Social Cost of Carbon**

Steve Rose, Senior Technical Leader,
Energy and Environmental Analysis, EPRI

2:40 p.m. – 3:10 p.m.

Refreshment Break

3:10 p.m. – 3:40 p.m.

**Perspectives on Cost Estimates of EPA's Proposed
Clean Power Plan**

Victor Niemeyer, Senior Technical Executive,
Energy and Environmental Analysis, EPRI

3:40 p.m. – 4:10 p.m.

EPA's Clean Power Plan - Development of State Plans

Michael Dowd, Air Director, VA Dept. of
Environmental Quality

4:10 p.m. – 5:00 p.m.

Open Q&A

5:30 p.m. – 7:00 p.m.

Reception

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7:00 a.m. – 8:00 a.m.

Continental Breakfast

8:00 a.m. – 10:00 a.m.

Five Concurrent Parallel Sessions

2a Air Quality Health

2b Water Resource Management

2c Energy & Climate Analysis – Analyses of the Clean Power Plan

2d Environmental Issues Related to Renewable Energy

2e Coal Combustion Products Management

Session 2a: Air Quality Health

Co-Chairs: Annette Rohr and Stefanie Ebelt Sarnat

8:00 a.m.

Evaluation of Evidence EPA Cites in Support of the Ozone National Ambient Air Quality Standards for Ozone Proposed Rule

Julie E. Goodman, Sonja N. Sax, Heather N. Lynch, Christine T. Loftus, Robyn L. Prueitt, Erin M. Kennedy; Gradient

8:30 a.m.

Comparison of Exposure Assignment Approaches in a Multi-City Time-Series Study of Criteria Pollutants and Cardiorespiratory Emergency Department Visits

Stefanie Ebelt Sarnat,¹ Andrea Winquist,¹ Jeremy A. Sarnat,¹ James A. Mulholland,² Armistead G. Russell,² Paige E. Tolbert¹; ¹Emory University, ²Georgia Institute of Technology

9:00 a.m.

Novel Approaches to Examining the Impact of Multiple Air Pollutants on Health

Helen Suh, Northeastern University

9:30 a.m.

Review of Major Findings from Multivariate Pollutant Research In the Laboratory

Jake McDonald, Lovelace Respiratory Research Institute

10:00 a.m. – 10:30 a.m.

Coffee Service

Session 2b: Water Resource Management (Panel)

Co-Chairs: Bob Goldstein and Mike Hightower

8:00 a.m.

The Environmental and Sustainability Challenges of Water Use in the Electricity Sector

Mike Hightower, Sandia National Laboratories

8:30 a.m.

Toward a Better Understanding of Water Withdrawals and Consumption in the Thermoelectric, Agricultural, and Municipal Sectors

Sujoy Roy, Tetra Tech

9:00 a.m.

Electric Power Sector Engagement in Water Stewardship: Drivers, Benefits, and Challenges

Laura Weintraub, LimnoTech

9:30 a.m.

Panel Discussion – Michael Hightower, Sujoy Roy, and Laura Weintraub

Bob Goldstein, Moderator

10:00 a.m. – 10:30 a.m.

Coffee Service

Session 2c: Energy & Climate Analysis – Analyses of the Clean Power Plan (Panel)

Co-Chairs: Francisco de la Chesnaye and Bruce Braine

8:00 a.m.

Introduction to the Panel

Bruce Braine, AEP & Francisco de la Chesnaye, EPRI

8:15 a.m.

Remaking American Power

John Larsen, Rhodium Group

9:00 a.m.

Costs and Benefits of EPA's Proposed Clean Power Plan

Scott Bloomberg, NERA Economic Consulting

9:45 a.m.

Open Q&A

10:00 a.m. – 10:30 a.m.

Coffee Service

Preliminary Program

Wednesday, May 13, 2015

Session 2d: Environmental Issues Related to Renewable Energy

Co-Chairs: Andy Coleman and John Goodrich-Mahoney

8:00 a.m.

Environmental Aspects of Renewables

Andy Coleman, EPRI

8:30 a.m.

Environmental Review and Assessment of Renewable Energy Projects.

Paul Jacobson, EPRI

9:00 a.m.

Predicting Solar Insolation for Renewable Energy Technologies using Supervised Machine Learning Techniques

Frank E. Yeboah, Robert Pyle, Christian Bock-Hyeng; North Carolina Agricultural & Technical State University

9:30 a.m.

Evaluating Noise Impacts in the Licensing of Renewable Energy Projects in Maryland

P. Diane Mountain,¹ John Sherwell²; ¹Environmental Resources Management, Inc., ²Maryland Department of Natural Resources, Power Plant Research Program

10:00 a.m. – 10:30 a.m.

Coffee Service

Session 2e: Coal Combustion Products Management

Co-Chairs: Ken Ladwig and Craig Benson

8:00 a.m.

State and Federal Drivers for CCR Disposal and Reuse: Process Versus Prescription

John L. Daniels; Department of Civil and Environmental Engineering, UNC Charlotte

8:30 a.m.

Creating Sustainable Roadway Infrastructure Using Coal Combustion Products

Craig Benson, University of Wisconsin

9:00 a.m.

Framework for Evaluating Relative Impacts for Surface Impoundment Closure Options

Ari S. Lewis,¹ Andrew B. Bittner,¹ Kurt Herman,¹ Eric M. Dubé,¹ Chris M. Long,¹ Bruce R. Hensel,² Kenneth J. Ladwig²;

¹Gradient, ²Electric Power Research Institute

9:30 a.m.

Use of Potential Failure Modes Analysis to Address Ash Pond Stability and EPA Coal Ash Regulations

Bill Walton, GEI Consultants

10:00 a.m. – 10:30 a.m.

Coffee Service

10:30 a.m. – 12:00 p.m.

Five Concurrent Parallel Sessions

3a Air Quality Health

3b Threatened and Endangered Species

3c Energy & Climate Analysis – Analyses of Costs of the Clean Power Plan

3d Environmental Issues Related to Renewable Energy

3e Coal Combustion Products Management

Session 3a: Air Quality Health

Co-Chairs: Annette Rohr and Stefanie Ebel Samat

10:30 a.m.

Building a Better Bridge Between Environmental Health Science and Health Risk Assessment

Anne E. Smith; NERA Economic Consulting

11:00 a.m.

Triggering of Myocardial Infarction by Increased Ambient Fine Particle Concentration: Examination of Source Specific PM_{2.5} and PM_{2.5} Source Direction

David Q. Rich,¹ Philip K. Hopke,² Cathleen Kane,¹ Kristin Evans,¹ David Chalupa,³ Pramod Kumar,² Frederick Ling,⁴ Blake Gardner,⁵ Mark J. Utell³; ¹Department of Public Health Sciences, University of Rochester School of Medicine and Dentistry, ²Center for Air Resources Engineering and Science, Clarkson University, ³Division of Pulmonary and Critical Care Medicine, Department of Medicine, University of Rochester Medical Center, ⁴Division of Cardiology, Department of Medicine, University of Rochester Medical Center, ⁵Central Utah Clinic

Preliminary Program

Wednesday, May 13, 2015

11:30 a.m.

Pulmonary Inflammatory Effects of Source-Oriented Particulate Matter from California's San Joaquin Valley

Laurel E. Plummer,¹ Christopher M. Carosino,¹ Keith J. Bein,^{1,2} Yongjing Zhao,² Anthony S. Wexler,² Kent E. Pinkerton,^{1,2}

¹Center for Health and the Environment, University of California, ²Air Quality Research Center, University of California

12:00 p.m. – 1:00 p.m.

Lunch

Session 3b: Threatened and Endangered Species (Panel)

Co-Chairs: Becca Madsen and Nalini Rao

10:30 a.m.

Research in the Context of Increased Endangered Species Act Demands

Douglas Krofta, Chief, Branch of Endangered Species Listing, U.S. Fish and Wildlife Service

11:00 a.m.

Opportunities for Innovation Pre- and Post-Listing

Tim Male, Deputy Associate Director for Wildlife, White House Council on Environmental Quality

11:30 a.m.

An Innovative Large-Scale Multi-Species Habitat Conservation Plan for Pipeline O&M

Rick Hall, NiSource

12:00 p.m. – 1:00 p.m.

Lunch

Session 3c: Energy & Climate Analysis – Analyses of Costs of the Clean Power Plan (Panel)

Co-Chairs: Francisco de la Chesnaye and Bruce Braine

10:30 a.m.

GHG Rules and Strategic Behavior under the Clean Power Plan

Dallas Burtraw, Resources for the Future

11:05 a.m.

Nicholas Institute Analysis of the Clean Power Plan CPP

Martin Ross, Nicholas Institute, Duke University

11:40 a.m.

Open Q&A

12:00 p.m. – 1:00 p.m.

Lunch

Session 3d: Environmental Issues Related to Renewable Energy: Birds and Bats

Co-Chairs: Chris Melhorn and John Goodrich-Mahoney

10:30 a.m.

Smart Curtailment: Optimizing Wind Power Generation and Bat Conservation

Christine Sutter,¹ John Goodrich-Mahoney,² Lauren Hooton¹; ¹Normandeau Associates, ²EPRI

11:00 a.m.

Integrating Avian-friendly Electrical Infrastructure with Renewable Energy

Rick Harness; EDM International, Inc.

11:30 a.m.

Population-level Impacts of Wind Energy on Wildlife Populations: Assessing Risk to Golden Eagles and Indiana Bats

Nicholas A. Friedenber; Applied Biomathematics, Inc.

12:00 p.m. – 1:00 p.m.

Lunch

Preliminary Program

Wednesday, May 13, 2015

Session 3e: Coal Combustion Products Management

Co-Chairs: Ken Ladwig and Craig Benson

10:30 a.m.

EPA Guidance on Using the Leaching Environmental Assessment Framework

Susan Thorneloe, US EPA Office of Research and Development

11:00 a.m.

Water Management to meet CCR Rule

Tom Higgins, Dennis Fink, Kristen Jenkins, Chris Hardin, Karen Leber; CH2M HILL

11:30 a.m.

Groundwater Monitoring Under the Coal Combustion Residuals Rule

Bruce Hensel, EPRI

12:00 p.m. – 1:00 p.m.

Lunch

1:00 p.m. – 3:00 p.m.

Five Concurrent Parallel Sessions

- 4a Air Toxics Health & Risk Assessment
- 4b Effluent Guidelines
- 4c Energy & Climate Analysis – Clean Power Plan Regional Implementation Perspectives
- 4d Lifecycle Assessment of Renewable Technologies
- 4e Groundwater Management

Session 4a: Air Toxics Health & Risk Assessment

Co-Chairs: Annette Rohr & Deborah Proctor

1:00 p.m.

Mercury: The Need for a Reappraisal of Its Releases and Fate

David G. Streets,¹ Hannah M. Horowitz,² Elsie M. Sunderland²;
¹Argonne National Laboratory, ²Harvard University

1:30 p.m.

Cumulative Risk Assessment of Urban Air Toxics: A Pilot Study in San Antonio, Texas

Deborah M. Proctor,¹ Mina Suh,¹ Gregory P. Brorby,¹ J. Andrew Tachovsky,¹ Liz Mittal,¹ J. Gregory Hixon,¹ Annette Rohr²; ¹ToxStrategies, Inc., ²EPRI

2:00 p.m.

Comprehensive Analysis of Inorganic Arsenic Concentrations in Finfish and Shellfish for Use in Risk Assessment

Ari S. Lewis,¹ Heather N. Lynch,¹ David B. Mayfield,¹ Grace I. Greenberg,¹ Leonard Levin²; ¹Gradient, ²Electric Power Research Institute

2:30 p.m.

Evaluation of Gene Expression Changes in Human Primary Lung Epithelial Cells Following 24-hr Exposures to Inorganic Arsenic and its Methylated Metabolites and to Arsenic Trioxide

Harvey J. Clewell,^{1,2} Janice W. Yager,^{1,3} Alina Efremenko,¹ JeanClare Seagrave,⁴ Cynthia Van Landingham,¹ P. Robinan Gentry¹; ¹ENVIRON International Corp, ²Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, ³Health Sciences Center, University of New Mexico, ⁴Lovelace Respiratory Research Institute

3:00 p.m. – 3:30 p.m.

Refreshment Break

Preliminary Program

Wednesday, May 13, 2015

Session 4b: Effluent Guidelines

Co-Chairs: Paul Chu and Donna Hill

1:00 p.m.

Industry Perspectives on Regulatory Impacts of the Effluent Guidelines Rule

Elizabeth Aldridge; Hunton & Williams LLP

1:30 p.m.

Compliance Strategies for FGD Wastewater

Jeff Wilson, Tyler Cromey; Southern Company

2:00 p.m.

Guidance for Power Plants in Responding to the FGD Wastewater Numeric Standards

Tom Higgins, Dennis Fink, Kristen Jenkins, Deb Egeland; CH2M HILL

2:30 p.m.

Biological FGD Wastewater Treatment

Joe Chwirka,¹ Jean-Claude-Younan,² Paul Chu³;

¹Tetra Tech, ²SCANA, ³EPRI

3:00 p.m. – 3:30 p.m.

Refreshment Break

Session 4c: Energy & Climate Analysis – Clean Power Plan Regional Implementation Perspectives (Panel)

Chair: Victor Niemeyer

1:00 p.m.

PJM Analysis of the Clean Power Plan

M. Gary Helm, PJM Interconnect and other regional speakers

1:30 p.m.

Regional Cooperation Under the Clean Power Plan

David Young, EPRI

2:00 p.m. TBD

TBD

2:30 p.m.

Open Discussion and Q&A

3:00 p.m. – 3:30 p.m.

Refreshment Break

Session 4d: Lifecycle and Other Assessments of Renewable Technologies

Co-Chairs: Stephanie Shaw and Garvin Heath

1:00 p.m.

Lifecycle Analysis for Estimating the Human Health Impact from Electricity Generating Sources

Marilyn Diaz, Peter LaPuma; GWU, Milken School of Public Health

1:30 p.m.

A Review of Environmental Impacts of Renewable Electricity Generation Technologies from a Life Cycle Perspective

Garvin Heath; National Renewable Energy Laboratory

2:00 p.m.

Integrating Anthracite Surface Mining and Reclamation with Pumped Storage Construction

Paul A. DiRenzo, Jr.; Peak Hour Power, LLC

2:30 p.m.

Addressing Air Quality Issues of Biopower in California

Marc Carreras-Sospedra,¹ Jacob Brouwer,¹ Robert Williams,² Donald Dabdub¹; ¹University of California, Irvine, ²California Biomass Collaborative, University of California, Davis

3:00 p.m. – 3:30 p.m.

Refreshment Break

Session 4e: Groundwater Management

Co-Chairs: Ken Ladwig & Bob Goldstein

1:00 p.m.

Priority Groundwater Activities at the U. S. Geological Survey

Paul Barlow, US Geological Survey

1:30 p.m.

Groundwater Activities in the DOE Related to the Water-Energy Nexus

John Quinn, Argonne National Laboratory

2:00 p.m.

Hydraulic Tomography: High-Resolution Subsurface Characterization for Optimizing Environmental Control and Remediation

Bill Mok, GSI Environmental

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2:30 p.m.

U.S. Nuclear Industry Perspective: Voluntary Groundwater Protection Initiative

George Oliver, Ron Cardarelli, CN Associates

3:00 p.m. – 3:30 p.m.

Refreshment Break

3:30 p.m. – 5:00 p.m.

Five Concurrent Parallel Sessions

5a Air Toxics Health & Risk Assessment

5b Effluent Guidelines

5c Climate Policy Beyond the Clean Power Plan

5d Air Quality Modeling

5e Sustainability

Session 5a: Air Toxics Health & Risk Assessment

Co-Chairs: Annette Rohr and Deborah Proctor

3:30 p.m.

Mortality Update and Inhalation Cancer Risk Assessment of Hexavalent Chromium

Deborah M. Proctor,¹ Mina Suh,¹ Liz Mittal,¹ Kenny Crump,² Annette Rohr³; ¹ToxStrategies, Inc., ²Kenny Crump, ³EPRI

4:00 p.m.

High-Resolution, Low-Dose Dose-Response for Arsenic-Induced Cytotoxicity: Preliminary Results

Kenneth Bogen,¹ Lora Arnold,² Karen Pennington,² Samuel Cohen²; ¹Exponent, ²University of Nebraska Medical Center

4:30 p.m.

Human Health Risk Assessment for a Natural Gas-Fueled Power Plant Project

Christopher M. Long, Peter A. Valberg; Gradient

Session 5b: Effluent Guidelines

Co-Chairs: Paul Chu and Donna Hill

3:30 p.m.

Physical/Chemical Treatment for Arsenic and Mercury in FGD Wastewater

Tom Higgins,¹ Dennis Fink,¹ Kristen Jenkins,¹ Laura Reid,¹ Paul Chu²; ¹CH2M HILL, ²Electric Power Research Institute

4:00 p.m.

Evaluation of Zero Valent Iron (ZVI) Technologies

Chethan Acharya, Southern Company

4:30 p.m.

R&D Needs to Respond to the Proposed Effluent Guidelines Standards for FGD Wastewater

Paul Chu and Jeffery Preece, EPRI

Session 5c: Climate Policy Beyond the Clean Power Plan

Chair: Tom Wilson

3:30 p.m.

US Methane Emissions and Relevance for Climate Policy

Daniel Jacob, Harvard University

4:00 p.m.

Energy and Climate Policy Analysis - Electrification and Other Emission Reduction Strategies

Keith Dennis, National Rural Electric Cooperative

4:30 p.m.

Beyond the Clean Power Plan: Commentary and Discussion

Francisco de la Chesnaye, EPRI

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Session 5d: Air Quality Modeling

Co-Chairs: Eladio Knipping and Athanasios (Thanos) Nenes

3:30 p.m.

Demand Response and Air Quality: Making the Case for Green DR

K. Max Zhang,¹ Zheming Tong,¹ Xiyue Zhang²; ¹Sibley School of Mechanical and Aerospace Engineering, Cornell University, ²Cornell Institute of Public Affairs, Cornell University

4:00 p.m.

Dealing with Implementation of the 1-hour SO₂ NAAQS: Challenges and Options

Robert J. Paine; AECOM

4:30 p.m.

The SO₂ Data Requirements Rule: Modeling Approaches to Attainment Demonstrations

Richard P. Hamel, Elizabeth T. Barfield; Environmental Resources Management (ERM)

Session 5e: Sustainability

Chair: Jessica Fox

3:30 p.m.

Development of Open-source Life cycle Inventory Data for Electricity Generation in the United States, Including Water, Greenhouse Gas, and Land Use

Seung-Jin Lee,¹ Wesley W. Ingwersen,² Troy R. Hawkins³; ¹University of Michigan-Flint, Department of Earth and Resource Science, ²United States Environmental Protection Agency, National Risk Management Research Laboratory, ³Enviance, Inc.

4:00 p.m.

Supply Chain Impacts in the Electric Power Industry: Assessment, Impacts, and Management

Chris Peterson, Electric Utility Sustainable Supply Chain Alliance

4:30 p.m.

Defining Sustainability Metrics, Based on their Purpose, Material Issue, and Measurement Protocols

Jessica Fox, EPRI

Thursday, May 14, 2015

7:00 a.m. – 12:00 p.m.

Conference Registration

7:00 a.m. – 8:00 a.m.

Presenters' Breakfast

7:00 a.m. – 8:00 a.m.

Continental Breakfast

8:00 a.m. – 10:00 a.m.

Four Concurrent Parallel Sessions

6a T&D Environmental Issues

6b Plant Decommissioning

6c Water Technology Innovation

6d Air Quality Modeling

Session 6a: T&D Environmental Issues

Co-Chairs: Rob Kavet and Chris Melhorn

8:00 a.m.

Use of Transmission Line Easements for the Benefit of Native Bees

Rob Kavet, Mike Silva; Electric Power Research Institute

8:30 a.m.

Pacemaker and Defibrillator Resistance to 60 Hz Electric Fields

G. Ostiguy,¹ DH. Nguyen,² M. Plante,¹ A. Turgeon,² Daniel Goulet,³ R. Kavet,⁴ B. Thibault,⁵ P. Khairy,⁵ K M. Dyrda⁵; ¹Hydro-Quebec, Health and Safety Division ²Institut de Recherche Electrique du Québec, ³Hydro-Québec, TransÉnergie, Hydro-Québec, ⁴Electric Power Research Institute, ⁵Montreal Heart Institute, Université de Montréal

9:00 a.m.

Characterizing Electromagnetic Field Emissions from New Sources Associated with Smart Grid Development

Robert Kavet; Electric Power Research Institute

9:30 a.m.

Smart Meters: The Issue of RF Exposure

Richard A. Tell; Richard Tell Associates, Inc.

10:00 a.m. – 10:30 a.m.

Coffee Service

Preliminary Program

Thursday, May 14, 2015

Session 6b: Plant Decommissioning

Co-Chairs: Jeff Clock and Bruce Sieving

8:00 a.m.

The Plant Decommissioning Process

Bruce J. Sieving; Energy Consultant

8:30 a.m.

Confronting Legacy PCB Issues Before and During Plant Decommissioning

John Woodyard; Weston Solutions

9:00 a.m.

Alternate Endpoints for Remediating NAPL-Impacted Sites

Kurt Herman, Samuel A. Flewelling, Andy Bittner, Matthew P. Tymchak, Meghna Swamy; Gradient

9:30 a.m.

Environmental Issues Identification and Resolution during Power Plant Decommissioning

Christopher Carleo, Gregory Sampson; AECOM

10:00 a.m. – 10:30 a.m.

Coffee Service

Session 6c: Water Technology Innovation

Co-Chairs: Kent Zammit and Sumanta Acharya

8:00 a.m.

Recent Advances on Dry Cooling Technologies

Sumanta Acharya, University of Memphis

8:30 a.m.

Thermosiphon Cooler Hybrid Systems

Tom Carter, Johnson Controls, Inc.

9:00 a.m.

Indirect Dry Cooling Using Phase-Change Materials

Ying Sun, Drexel University

9:30 a.m.

Hydrophobic Nano-Structure Enhancement of ACC Surfaces

Evelyn Wang, MIT

10:00 a.m. – 10:30 a.m.

Coffee Service

Session 6d: Air Quality Modeling

Co-Chairs: Eladio Knipping and Athanasios (Thanos) Nenes

8:00 a.m.

Photochemical Modeling of Future Electric Generation

Mark Janssen, Alexander Cohan; Lake Michigan Air Directors Consortium

8:30 a.m.

Evaluation of Attainment Modeling Methods for Ozone and Particulate Matter

Daniel Cohan, Beata Czader; Department of Civil and Environmental Engineering, Rice University

9:00 a.m.

Constraining NO_x Emissions with Space-Based Data: Step 1: Understanding the Correspondence of Ozone Monitoring Instrument (OMI) NO₂ Column Observations to U.S. AQS and CEMS Data

Bryan N. Duncan, Lok Lamsal; NASA Goddard Space Flight Center

9:30 a.m.

Factors Controlling PM and Ozone Over the Southeast US as Emissions Decrease: Insights from the NASA SEAC4RS Campaign

Daniel J. Jacob; Harvard University

10:00 a.m. – 10:30 a.m.

Coffee Service

10:30 a.m. – 12:00 p.m.

Four Concurrent Parallel Sessions

7a T&D Environmental Issues

7b Plant Decommissioning

7c Water Technology Innovation

7d Air Quality Modeling

Preliminary Program

Thursday, May 14, 2015

Session 7a: T&D Environmental Issues

Co-Chairs: Rob Kavet and Chris Melhorn

10:30 a.m.

State of the Epidemiologic Science of Extremely Low Frequency Magnetic Fields and Cancer

Ximena P. Vergara; Electric Power Research Institute

11:00 a.m.

Wind and Water Power: Research Initiatives at the U.S. Department of Energy to Address Environmental Uncertainties for these Technologies

Hoyt Battey,¹ Patrick Gilman,¹ Jocelyn Brown-Saracino,² Raphael Tisch,² Samantha Bickel³; ¹U.S. Department of Energy, Wind and Water Power Technology Office, ²New West Technologies, LLC, ³ORISE Science and Technology Policy Fellow

11:30 a.m.

Management of Invasive, Exotic Plants on Powerline Rights-of-Way: EPRI's On-Going Field-Based Research and Development Projects

Dr. Christopher Nowak,¹ Dr. Benjamin Ballard,² Dr. Philip Hofmeyer,² Ms. Juliana Quant,¹ Dr. Martin Doviak¹; ¹SUNY-ESF (State University of New York College of Environmental Science and Forestry), ²Morrisville State College

12:00 p.m.

60Hz Electric Field Generation, Characterisation and Control for In-vitro Laboratory Test on Cardiac Implantable Electronic Devices (CIEDs)

Duc-Hai Nguyen,¹ Alain Turgeon,¹ Katia Dyrda,² Geneviève Ostiguy,³ Michel Plante³; ¹Hydro-Quebec's Research Institute, ²Montreal Heart Institute, ³Hydro-Québec Health and Safety Division

12:30 p.m. – 1:00 p.m.

Lunch

Session 7b: Plant Decommissioning

Co-Chairs: Jeff Clock and Bruce Sieving

10:30 a.m.

Identifying and Managing Structural PCB Impacts During Plant Decommissioning and Renovation

Douglas A. Chenoweth, Arthur B. Losey; Conestoga-Rovers & Associates, Inc.

11:00 a.m.

Establishing a Decommissioning, Demolition, and Decontamination (DDD) Process – Lessons Learned

Jeffery L. Pope; Burns & McDonnell Engineering Co., Inc.

11:30 a.m.

Environmental Risk Allocation Approaches for Power Plant Decommissioning

Stephen Mitchell, James Groesbeck; Weston Solutions, Inc.

12:00 p.m. – 1:00 p.m.

Lunch

Session 7c: Water Technology Innovation

Co-Chairs: Kent Zammit and Sumanta Acharya

10:30 a.m.

Membrane Monitoring (MeMo) Technology for Self-Adaptive Water Treatment and Desalination

Yoram Cohen, UCLA

11:00 a.m.

Carbon Nano-tube Enhanced Membranes for Generation of Pure Water and Treatment of Wastewater

Somenath Mitra, NJIT

11:30 a.m.

Hybrid Dephlegmator

H.C.R. (Hanno) Reuter, University of Stellenbosch

12:00 p.m. – 1:00 p.m.

Lunch

Preliminary Program

Thursday, May 14, 2015

Session 7d: Air Quality Modeling

Co-Chairs: Eladio Knipping and Athanasios (Thanos) Nenes

10:30 a.m.

Investigating Power Plant Emissions and Their Impacts on Air Quality and Climate

Gregory J. Frost,¹ Jeff Peischl,^{1,2} Thomas Ryerson,¹ Si Wan Kim,^{1,2} Joost de Gouw,^{1,2} Michael Trainer¹; ¹NOAA Earth System Research Laboratory, ²Cooperative Institute for Research in Environmental Sciences, University of Colorado

11:00 a.m.

Dynamic Management of NO_x and SO₂ Emissions in Two Electric Power Systems and Implications for Air Quality

Elena McDonald-Buller,¹ Michael Craig,² Yosuke Kimura,¹ Mort Webster,³ David Allen¹; ¹The University of Texas at Austin, ²Carnegie Mellon University, ³Pennsylvania State University

11:30 a.m.

A New Approach for Optimal Electricity Planning and Dispatching with Hourly Time-Scale Air Quality and Health Considerations

Athanasios Nenes,^{1,2} Paul Kerl,³ Wenxian Zhang,^{2,4} Juan Moreno-Cruz,⁵ Matthew Realf, ¹ Armistead Russell,⁶ Joel Sokol,³ Valerie M. Thomas^{3,7}; ¹School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, ²School of Earth and Atmospheric Sciences, Georgia Institute of Technology, ³School of Industrial and Systems Engineering, Georgia Institute of Technology, ⁴Sierra Research, ⁵School of Economics, Georgia Institute of Technology, ⁶School of Civil and Environmental Engineering, Georgia Institute of Technology, ⁷School of Public Policy, Georgia Institute of Technology

12:00 p.m. – 1:00 p.m.

Lunch