

Climate Change Conference 2013

Impacts, Policy and Regulation

Washington, DC, USA

9-11 September 2013

ISBN: 978-1-63439-347-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

The opinions expressed in these papers are solely of the authors and should not be considered as having the endorsement or support of the Association.

Compilation Copyright © (2013) by the Air & Waste Management Association.
Copyright of the individual papers are retained by the authors.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the Air and Waste Management Association
at the address below.

Air and Waste Management Association
One Gateway Center, 3rd Floor
420 Fort Duquesne Blvd.
Pittsburgh, Pennsylvania 15222-1435

Phone: 800 270 3444
Fax: 412 232 3450

www.awma.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

KEYNOTE PANEL

International Efforts to Address Methane - Lessons Learned from the Global Methane Initiative and the Climate and Clean Air Coalition	1
<i>Paul Gunning</i>	
US Progress on Climate Change Mitigation and Options for Global Action	11
<i>Thomas Peterson</i>	
Climate Policy: Comparison of Cap and Trade vs. Tax	45
<i>Bruce Braine</i>	
Climate Data to Decisions	50
<i>Jenny Dissen, Otis Brown, Tamara Houston</i>	

LUNCHEON SPEAKER

Climate Change; The Bad News, the Good News and the Path Forward	59
<i>Tom Kerr</i>	

SESSION 1: CLIMATE CHANGE IMPACTS AND ADAPTATION

Climate Change Municipal Risk Assessment Model to Assist in Prioritization of Investment	66
<i>Ravi Mahabir, Scott Praill, Dave Poole</i>	
Using Rainfall Measurements to Assess Climate Change and Its Impact on Municipal Infrastructure	71
<i>Hong Liu, Paul Donahue, Carrie Baron</i>	
Storm Tide and Wind Impact of Hurricane Sandy Along the Hudson River	76
<i>Paul Eisen</i>	
Working Towards Climate Preparedness in the National Capital Region	87
<i>Amanda Campbell, Maia Davis, John Rohlf</i>	
Port of San Diego Climate Mitigation and Adaptation Plan (Climate Plan) and the Road Ahead	93
<i>Cody Hooven, Douglas Daugherty, Laura Moran, David Kim</i>	
Integrated Multi-pollutant Planning for Energy and Air Quality (IMPEAQ)	99
<i>Christopher James, Kenneth Colburn, John Shenot</i>	
Assessment of Climate Change Impacts on the Electric Power Industry Using the Integrated Planning Model	106
<i>Wendy Jaglom, Charlotte Mack, Boddu Venkatesh, Rawlings Miller, Juanita Haydel, Michelle Colley, Joseph Casola, Paul Cross, Peter Schultz, Serpil Kayin, James McFarland, Bill Perkins</i>	
Regulating Greenhouse Gas Emissions under the Endangered Species Act	111
<i>Lisa Bennett, Carlos Romos</i>	
Incorporating Impacts of Changing Fire Regimes and Emissions in Integrated Climate Change Mitigation and Adaptation Strategies	116
<i>William Sommers</i>	

SESSION 2: POLICY, INTERNATIONAL & NATIONAL

The Past as Prologue: Inter-linkages of International Climate Change Negotiations and U.S. Climate Policy	123
<i>Eric Holdsworth</i>	
The Future (Form) of Climate Change Policy and Regulation in the United States	126
<i>Kurt Kissling</i>	
Driving Factors to Reduce CO2 Emissions: In Case of Japanese Industries	130
<i>Takako Wakiyama</i>	
Greenhouse Gas Emission Mitigation Plan for the State of Israel: Strategies, Incentives and Reporting	135
<i>Ofira Ayalon, Miriam Lev-On, Perry Lev-On</i>	

EPA Regulation of Greenhouse Gases, a Carbon Tax, or All of the Above? – Understanding Their Relative Economic Impacts	142
<i>Scott Bloomberg, Mei Yuan, Sebastian Mankowski, Anne Smith</i>	
Integrated Assessment of the Co-Benefits of Fine Particulate Matter Reduction Under US Climate Change Policies	147
<i>Rebecca Saari, Noelle Selin, Sebastian Rausch, Tammy Thompson</i>	
Economic Modeling for the Western Climate Initiative	153
<i>William Dean</i>	
Are Current Strategies Sufficient to Determine Funding Allocation for California’s Cap and Trade Proceeds?	158
<i>Linda Hall, Douglas Daugherty</i>	
New Greenhouse Gas Protocol Standards for Quantifying GHG Effects of Policies and Tracking Progress Toward Mitigation Goals	162
<i>David Rich, Kelly Levin, Jared Finnegan, Apurba Mitra</i>	

SESSION 3: POLICY, CORP & LOCAL

Racing to the Top: Regional Greenhouse Gas Mitigation in the National Capital Region	167
<i>Amanda Campbell, Jeff King, Maia Davis, Joan Rohlf</i>	
Carbon Dioxide Emission Reductions as a Result of Fuel Switching from Coal to Natural Gas Fired Electricity Generation	174
<i>Marcus Koblitz</i>	
Projections of Achievable GHG Reductions Due to Increased Natural Gas Use in Electricity Generation and Industry	179
<i>Dahl Winters</i>	
Co-benefits of Integrating GHG, Air Quality, and Climate Change Adaptation Strategies	184
<i>Yasmeen Sultana, Kevin Madry</i>	
Urban Air Quality and Climate Change: How Policy and Regulation Can Cool the ‘Hot Spots’ in Vulnerable Communities	188
<i>Jalonne White-Newsome, Laetitia N’Dri, Cecil Corbin-Mark</i>	
Perspectives from the Transportation Energy Futures Project	195
<i>Austin Brown, Laura Vimmerstedt</i>	
A Climate-Killing Regional Transportation Plan Winds Up in Court: Background and Remedies	203
<i>Mike Bullock</i>	
Full Valuation of Energy Efficiency Benefits	210
<i>Kenneth Colburn, Christopher James, John Shenot</i>	
Lowering the Carbon Footprint Of a Traditional Fossil-fuel Power Plant	216
<i>Dan Golomb, Stephen Zemba, Louis Arak</i>	

NSPS PANEL

Closing the Power Plant Carbon Pollution Loophole: Smart Ways the Clean Air Act Can Clean Up America's Biggest Climate Polluters	222
<i>Starla Yeh, Daniel A. Lashof, David Doniger, David Hawkins</i>	
Section 111(d) Regulation of CO₂ Emissions from Existing Power Plants: Key Legal Issues	233
<i>Kyle Danish</i>	
Climate Change: Impacts, Policy, and Regulation NSPS Panel	238
<i>Aliison Wood</i>	

SESSION 4: GREENHOUSE GAS REGULATIONS

Carbon Capture, Utilization, and Storage as a Climate Change Mitigation Strategy: Challenges and Opportunities for the State of Maryland	245
<i>Jennifer Gunnulfsen, Brandie Sebastian, Leonard Rafalko, John Sherwell, Paul Petzrick</i>	
Streamlining GHG Permitting	250
<i>Howard Feldman</i>	
Case Studies of Permitting Greenhouse Gas Emissions	255
<i>Ian Donaldson, Ali Farnoud, Susan Barnes</i>	

EPA’s GHG Regulations: A Help or Hindrance to Geologic CCS and Beneficial Uses of Captured Carbon Dioxide?	260
<i>Margaret Peloso, Matthew Dobbins</i>	
Challenges and Lessons Learned in Developing an Integrated Data Management System to Support EPA’s Greenhouse Gas Reporting Program	265
<i>Kong Chiu, Peter Kokopeli</i>	
EPA Greenhouse Gas Reporting Program Data Quality Management System	269
<i>Sean Hogan, Brian Cook, Kong Chiu, Michael Hannan, Barbora Master, Katherine Sibold</i>	
Verifications of Stationary Combustion and Electricity Generating Sources Reported to the EPA Greenhouse Gas Reporting Program	274
<i>Jason Goldsmith, Stephen Boone, Matthew Hakos, Michael Hannan, Sean Hogan</i>	
Cost of Compliance with EPA’s Mandatory GHG Reporting Rule, Subpart W for Onshore Oil and Natural Gas Production	281
<i>Terri Shires, Matt Harrison</i>	
Complexities in Defining Boundaries for Mandatory Greenhouse Gas Reporting	286
<i>David Kim, Douglas Daugherty, Jeffrey Forde</i>	
FERC Order 1000 Offers New Opportunities for Air Quality Considerations in Electric System Planning	290
<i>Christopher James, Kenneth Colburn</i>	

SESSION 5: GREENHOUSE GAS INVENTORIES

RGGI Unplugged: Accounting for All CO₂ Emissions from the Electric Power Consumed in the RGGI Region	295
<i>David Farnsworth</i>	
Environmental and Carbon Disclosure: Status, Evolution & Best Practices	299
<i>John Fillo</i>	
How a California Utility Implemented a Single Reporting Solution for Multiple Climate Change Programs	304
<i>Linus Farias</i>	
Data Quality Challenges and Opportunities with Greenhouse Gas Emissions Reporting in the US and Implications for Future Policy to Mitigate Climate Change	308
<i>Ramesh Narasimhan, Nicole Sullivan, Jessica Quinn</i>	
Light Duty in Use GHG/Fuel Economy Data Collection and Evaluation	316
<i>Timothy Defries, Michael Sabisch, Sandeep Kishan, John German, Francisco Posada Sanchez, Anup Bandivadekar</i>	
Planning-Level Assessment of Construction and Maintenance Emissions	321
<i>Jeffrey Houk, John Davies, Frank Gallivan</i>	
A Cross Canada Review of Greenhouse Gas Reporting Programs	326
<i>John Georgakopoulos, Joanna Vince</i>	
Carbon Dioxide Emissions Indirectly Generated from U.S. Plug-In Electric Vehicles	338
<i>Ashley Mapou, Derek Shendell</i>	
Emissions Data Reported to the Greenhouse Gas Reporting Program	343
<i>John Crenshaw</i>	

SESSION 6: NON-CO₂ GREENHOUSE GASES

Development of U.S. Non-CO₂ GHG Emissions Projections	349
<i>Paula Fields Simms, Joanna Maccarthy, John Watterson, Jameel Alsalam</i>	
Coal Mine Methane Developments in the United States and Globally	354
<i>Jayne Somers</i>	
Estimation of Methane Emissions Attributable to Stockpiled Power Plant Coal Fuels Prior to Combustion	360
<i>Andrew Stern, Robinson Khosah, John Sherwell, Robert Sawyer</i>	
Methane Emissions from Key Sources in Onshore Natural Gas Production Operations: A Comparative Assessment	365
<i>Karin Ritter, Terri Shires, Miriam Lev-On</i>	
Quantifying Methane Mitigation Opportunities and Costs from the US Oil and Natural Gas Sector	372
<i>David McCabe, Ellen Baum, Stephanie Sauner</i>	

Landfills and Methane Emissions in the United States: Emerging Trends and Highlights from the EPA Greenhouse Gas Reporting Program Data Set	377
<i>Katherine Bronstein, Jeffrey Coburn, Rachel Schmeltz</i>	
Lessons Learned from Federal Mandatory GHG Reporting Data Analysis for Landfills	382
<i>Raymond Huff, Amy Banister, Phillip Smith, John Henkelman, Patrick Sullivan, Niki Wuestenberg</i>	
Development of a Waste Sector NAMA: Lessons Learned	388
<i>Brian Guzzone</i>	
Methane and Nitrous Oxide Sources and Emissions in the Central Valley of California Derived from Positive Matrix Factorization (PMF) Analysis, Airborne Flux Measurements and Inverse Modeling of Tall Tower Observations	393
<i>Abhinav Guha, Pawel Misztal, Robin Weber, Allen Goldstein, Jeff Peischl, Thomas Ryerson, Seongeun Jeong, Marc Fischer, Drew Gentner, Thomas Karl</i>	

CLOSING PANEL

Climate Change Communication 101	399
<i>Justin Rolfe-Redding</i>	

POSTERS

Mandatory and Voluntary GHG Reporting Programs and Lessons Learned	425
<i>Yasmeen Sultana, Kevin Madry</i>	
The Climate – Cookstove Connection: A Review of House- hold Energy Interventions and an Assessment of GHG and Aerosol Emissions	429
<i>Katherine Bronstein</i>	
Global Effects of Sea Surface Temperature Anomalies on Carbon Dioxide Exchange Across the Atmosphere-Ocean Interface, 1996-2009	438
<i>Quinn Pallardy, Thomas Marrero</i>	
Author Index	