

# **Harmonizing Greenhouse Gas Assessment and Reporting Processes 2009**

**CP-186**

**Baltimore, Maryland, USA  
1-2 September 2009**

**Volume 1 of 2**

**ISBN: 978-1-61567-725-2**

**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.**

Copyright© (2009) by the Air and Waste Management Association  
All rights reserved.

Printed by Curran Associates, Inc. (2010)

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 Duzuesne Blvd.  
Pittsburgh, Pennsylvania 15222-1435

Phone: 800 270 3444  
Fax: 412 232 3450

[www.awma.org](http://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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>Maryland's Perspective on Climate Change</b> .....	1
<i>R.M. Summers</i>	

### KEYNOTE PANEL

<b>Developments in U.S. National Climate Change Policy</b> .....	18
<i>D. Kruger</i>	
<b>GHG Reporting for Today's Energy Industry</b> .....	34
<i>P. Faggert</i>	
<b>Collaborative GHG Data Collection</b> .....	50
<i>J. Gravender</i>	

### PLENARY SESSION

<b>The Intergovernmental Panel on Climate Change and Greenhouse Gas Monitoring</b> .....	62
<i>B. Irving</i>	
<b>EPA's GHG Mandatory Reporting Rulemaking</b> .....	93
<i>K. Sibold</i>	
<b>The ACES Act and the GHG Reporting Rule</b> .....	N/A
<i>W. Bumpers</i>	

### SESSION 1: REPORTING GUIDELINES

<b>A Decade of Initiatives to Promote Consistent and Reliable GHG Emission Quantification</b> .....	110
<i>K. Ritter, J. Keating, M. Lev-On, T. Shires</i>	
<b>Greenhouse Gas Emission Inventories for Major Chemical Plants for Voluntary and Mandatory Reporting</b> .....	138
<i>V. Evans</i>	
<b>Where's My Data? Estimating Leased Facility GHG Emissions with Imperfect Information</b> .....	167
<i>C.M. Taylor, M. Brill, W. Grayson</i>	
<b>Harmonizing and Quantifying Indirect Carbon Emissions</b> .....	205
<i>S.K. Matheson</i>	

### SESSION 2: GHG EMISSION REDUCTION PROJECTS

<b>Asset vs. Liability: Translating GHG Data into Carbon Offset Projects</b> .....	228
<i>M.L. Krembs, Z.K. Eyer, V.T. Schier</i>	
<b>Issues in Developing a Greenhouse Gas Offsets Protocol for Tidal Wetland Restoration Projects</b> .....	255
<i>J. Findsen, S. Crooks, K.A. Igusky</i>	
<b>Reducing SF<sub>6</sub> Emissions: Saving Money and Creating Carbon Offset Revenue</b> .....	273
<i>B. Mueller, B. Davis, B. Jones</i>	
<b>Quantifying Carbon Sequestration in Four Regional Afforestation Scenarios Using the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3)</b> .....	312
<i>B.N. Simpson, C.H. Shaw, W.A. Kurz</i>	

### SESSION 3: METHODOLOGY

<b>Greenhouse Gas Estimation Methods for Bus Fleet Upgrade Projects</b> .....	333
<i>N.E. Holt, J. Findsen, M.F. Lyon</i>	
<b>Standardizing and Professionalizing GHG Quantification</b> .....	357
<i>V. Madarasz, P. Boileau</i>	

<b>CO<sub>2</sub> Mass Emissions Determined by f-Factor Methodology</b> .....	388
<i>E.M. Swisher</i>	
<b>Landlord/Tenant Boundaries in GHG Emissions Inventories</b> .....	403
<i>C.A. Pierzchala, D.B. Spengel</i>	

#### **SESSION 4: INTEGRATED GHG EMISSION INVENTORIES**

<b>Integrated GHG Emission Inventory for Housing and Transport Sectors for the City of Mumbai and Development of Mitigation Plan</b> .....	423
<i>R. Kumar, S. Tandon, U.P.S. Madan</i>	
<b>Air Pollution in Asian Countries and Climate Change Interaction: Co-Benefit Consideration</b> .....	426
<i>N.T.K. Oanh</i>	
<b>Analysis of Multi-Pollutant Emissions Inventories for Key Industrial Sectors</b> .....	457
<i>A. Pope, T. Ndoh, L. Chappell</i>	
<b>Effects of the Global Economic Crisis on the Emissions of Air Pollutants and Environmental Policies in Mexico City</b> .....	507
<i>A. Hernández, V. Mugica</i>	

### **VOLUME 2**

#### **SESSION 5: STATE AND LOCAL CASE STUDIES**

<b>Greenhouse Gas Inventories of Baltimore County and County Government</b> .....	513
<i>P.A. Brady, B.D. Fath</i>	
<b>Pennsylvania Climate Change Action Plan</b> .....	544
<i>J. Slade</i>	
<b>Calculating Maryland State Government’s Environmental Footprint</b> .....	565
<i>R.D. Norling</i>	
<b>Development of an Integrated Criteria/Toxic Air Pollutant and Greenhouse Gas Emissions Inventory for Iowa</b> .....	591
<i>H.C. Lindquist, S.M. Roe, A. Bollman, M. Salhotra, L. Tooly, M. Stein</i>	

#### **SESSION 6: FACILITIES CASE STUDIES**

<b>A Public Sector Protocol for Greenhouse Gas Reporting</b> .....	622
<i>J.R. Hardison, R. Jonassen</i>	
<b>Development and Application of an Air Force Greenhouse Gas Emission Estimation Methodology</b> .....	644
<i>R. Chettri, R. Narayanan</i>	
<b>Estimating Institution-wide Personal Occupancy Vehicle GHG Emissions: Two Case Studies from the American Colleges and Universities President’s Climate Commitment (27)</b> .....	662
<i>S. Williamson, R. Serour</i>	
<b>Voluntary Greenhouse Gas Reporting in Higher Education</b> .....	684
<i>S.A. Strobe, A. Sawant</i>	

#### **SESSION 7: EMERGING GHG ISSUES**

<b>The Upcoming Canadian Offsets System: Necessary Harmonization with a North American GHG Abatement Scheme</b> .....	715
<i>F. Dagicour, P. Alary-Paquette</i>	
<b>The Offset Debate: Exploring the Role of Emission Reduction Projects within a Federal Greenhouse Gas Emissions Cap &amp; Trade Program</b> .....	751
<i>L. Wittig</i>	
<b>ANSI’s Accreditation Program for Greenhouse Gas Validation/ Verification Bodies (GHG V/VB)</b> .....	774
<i>B.T. O’Neil, A. bowles</i>	
<b>Measuring and Reducing GHG Emissions from the Supply Chain: A Climate Leaders Perspective</b> .....	812
<i>J. Sottong</i>	

## **SESSION 8: GREENHOUSE GAS INVENTORY AND DATA MANAGEMENT**

<b>NASA GSFC: A Case of State Driven GHG Inventory Development &amp; Serendipity</b> .....	818
<i>K. Moxley, J.M. Alcorn, I.S. Higuchi</i>	
<b>New Developments in Product Carbon Footprinting: Protocols and Applications</b> .....	845
<i>L.N. Grice, R. Huntley</i>	
<b>Title: Routine Air Emissions Databases and Greenhouse Gas Reporting</b> .....	865
<i>J.H. Southerland</i>	
<b>The Value of Increased Data Streams to Lower GHG Uncertainty Bounds</b> .....	904
<i>R.S. Zimmerman, D. MacTaggart, P. Wolff</i>	
<b>Greenhouse Gas Emission Issues</b> .....	N/A
<i>J. Sweeney</i>	

## **SESSION 9: SPECIAL PRESENTATIONS**

<b>Stakeholder Preferences for Climate Change Policy</b> .....	930
<i>M.E. Greene, L.C. Walters</i>	
<b>Bottom Up Measurement Methodologies of Greenhouse Gas Emissions from Fugitive and Area Sources to Support Reporting Requirements</b> .....	948
<i>R.A. Hashmonay, S.H. Ramsey</i>	
<b>How Reliable are GHG Combustion Calculations and Emission Factors?</b> .....	980
<i>S. Evans, S. Deery, J. Bionda</i>	

## **PANEL**

<b>Towards Harmonizing Data Reporting</b> .....	N/A
<i>R. Wayland, L. Ritts, J. Jarrett, M. West</i>	

## **CLOSING SESSION**

<b>Tackling the Triple Challenge in a Carbon-constrained Environment</b> .....	1021
<i>P. Tsirigotis</i>	
<b>Harmonizing GHG Reporting</b> .....	1031
<i>F. Webb</i>	
<b>Author Index</b>	