

U.S. DOE Industrial Efficiency & Decarbonization Office

Measuring Life-Cycle Greenhouse Gas Emissions from Water Resource Recovery Facilities Workshop

The Westin Washington, D.C. City Center - 1400 M St NW Washington, DC 20005. +1 202-429-1700

The U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Industrial Efficiency & Decarbonization Office (IEDO) is hosting a workshop on Measuring Lifecycle Greenhouse Gas (GHG) Emissions from Water Resource Recovery Facilities (WRRFs). There is a great deal of uncertainty about the quantities of direct and indirect GHG emissions from the full WRRF lifecycle, including both collection systems and ultimate disposal. In particular, there are questions about the empirical basis for existing emissions factors, and recognition that those factors are incomplete on a lifecycle basis. This workshop is intended to inform possible future DOE efforts to reduce these uncertainties through potential measurement campaign(s). In essence, the workshop seeks to identify key factors for a “design of experiment” approach to any such future activities.

Tuesday, January 23, 2024

AGENDA

8:00 AM – 9:00 AM	Workshop Check-in – Monticello Floor
8:30 AM – 9:00 AM	Continental Breakfast – Monticello Floor
9:00 AM – 9:10 AM	Welcome and Logistics – Monticello Room
9:10 AM – 9:30 AM	Opening Remarks and Workshop Objectives <i>Mark Philbrick, Technology Manager, IEDO, U.S. DOE</i>
9:30 AM – 9:50 AM	Plenary Presentation (Breakout 1) <i>David Ponder, Director of Climate Action, U.S. Water Alliance</i>
9:50 AM – 9:55 AM	Questions and Answers
9:55 AM – 10:15 AM	Plenary Presentation (Breakout 1) <i>Jason Ren, Associate Director for Research at Andlinger Center for Energy and the Environment, Princeton University</i>
10:15 AM – 10:20 AM	Questions and Answers
10:20 AM – 10:25 AM	Breakout Session Instructions
10:25 AM – 10:45 AM	Break
10:45 AM – 12:30 PM	Breakout Session 1: Measurement Strategies Focus Questions: 1. What are the state-of-the-art sampling/measurement techniques for both N ₂ O and CH ₄ throughout the wastewater treatment lifecycle?

	<ol style="list-style-type: none"> What are the major challenges in implementing direct measurement of GHG emissions throughout the WRRF life cycle? What technoeconomic challenges for existing sensing/measurement systems might be addressed by additional R&D?
12:30 PM – 1:30 PM	Lunch
1:30 PM – 2:00 PM	Breakout Session 1: Report Out – Monticello Room
2:00 PM – 2:20 PM	Plenary Presentation (Breakout 2) <i>Jose Porro, CEO & Founder, Cobalt Water</i>
2:20 PM – 2:25 PM	Questions and Answers
2:25 PM – 2:30 PM	Breakout Session Instructions
2:30 PM – 2:45 PM	Break
2:45 PM – 4:30 PM	Breakout Session 2: Design of Experiment Focus Questions: <ol style="list-style-type: none"> How large would direct measurement campaigns have to be to provide meaningful and material datasets to support: <ol style="list-style-type: none"> Updated emission factors, Ongoing measurement strategies for WRRFs, and Informed design of future campaigns? What kinds of variances should be prioritized included in an optimal experimental design and why? What are the key barriers to designing and executing such measurement campaigns at material scales?
4:30 PM – 5:00 PM	Breakout Session 2: Report Out
5:00 PM	End of Day 1

Wednesday, January 24, 2024

AGENDA

8:30 AM – 9:00 AM	Continental Breakfast – Monticello Floor
9:00 AM – 9:05 AM	Welcome and Logistics – Monticello Room
9:05 AM – 9:15 AM	Day Two Workshop Objectives <i>Mark Philbrick, Technology Manager, IEDO, U.S. DOE</i>
9:15 AM – 9:35 AM	Plenary Presentation (Breakout 3) <i>John Willis, Vice President - Wastewater Technical Solutions, Brown & Caldwell</i>
9:35 AM – 9:40 AM	Questions and Answers
9:40 AM – 10:00 AM	Plenary Presentation (Breakout 3) <i>Jeremy Kraemer, Wastewater Technical Director, GHD</i>
10:00 AM – 10:05 AM	Questions and Answers

10:05 AM – 10:10 AM	Breakout Session Instructions
10:10 AM – 10:30 AM	Break
10:30 AM – 12:15 PM	Breakout Session 3: Execution Considerations I Focus Questions: <ol style="list-style-type: none"> 1. What kinds of organizational capabilities would be most valuable in executing such measurement campaigns? 2. What might be the relative advantages and disadvantages of requiring a consortium of applicants in any prospective solicitations? 3. What kinds of solicitation evaluation metrics would maximize the probability of such campaigns to have substantive impact for the public good?
12:15 PM – 1:30 PM	Lunch
1:30 PM – 2:00 PM	Breakout Session 3: Report Out – Monticello Room
2:00 PM – 2:20 PM	Plenary Presentation (Breakout 4) <i>Harry Zhang, Research Program Manager, Water Research Foundation</i> <i>Ashwin Dhanasekar, Research Program Manager, Water Research Foundation</i>
2:20 PM – 2:25 PM	Questions and Answers
2:25 PM – 2:45 PM	Plenary Presentation (Breakout 4) <i>Amanda Lake, Head of Carbon and Circular Economy - Water Europe, Jacobs</i>
2:45 PM – 2:50 PM	Questions and Answers
2:50 PM – 2:55 PM	Breakout Session Instructions
2:55 PM – 3:15 PM	Break
3:15 PM – 4:45 PM	Breakout Session 4: Execution Considerations II Focus Questions: <ol style="list-style-type: none"> 1. What could potentially be achieved at various levels of funding over ~5 years (e.g., with \$5M, \$10M or \$15M)? 2. In what ways can GHG measurement campaigns address current problems/barriers that WRRFs are currently trying to solve? 3. How can we incorporate additional important topics, such as Scope 2 and 3 emissions, other air pollutants (NOx), and competing priorities (cost, drivers) in future workshops? 4. What has this workshop missed in this topic area?
4:45 PM – 5:15 PM	Breakout Session 4: Report Out – Monticello Room
5:15 PM – 5:20 PM	Closing Remarks <i>Mark Philbrick, Technology Manager, IEDO, U.S. DOE</i>
5:20 PM	Adjourn Workshop