

# Program

## CRC WORKSHOP ON LIFE CYCLE ANALYSIS OF TRANSPORTATION FUELS

Argonne National Laboratory

Argonne, IL

October 24-26, 2017



### WORKSHOP SPONSORS

API	National Biodiesel Board
Argonne National Laboratory	Renewable Fuels Association
California Air Resources Board	US Department of Agriculture
Canadian Fuels Association	University of Michigan Energy Institute
Concawe	Union of Concerned Scientists

### WORKSHOP ORGANIZERS

Aaron Levy**	US Environmental Protection Agency	David Lax	API
Geoff Cooper	Renewable Fuels Association	Luisa Marelli	Joint Research Center, Institute for Environment and Sustainability
Robert De Kleine**	Ford Motor Company	Jeremy Martin	Union of Concerned Scientists
Stephanie Searle	The International Council on Clean	Devin O'Grady	Natural Resources Canada
Jeff Farenback-Brateman**	ExxonMobil	Don Scott	National Biodiesel Board
Heather Hamje	CONCAWE	Daniel Short	Marathon Petroleum
Amit Kapur	Phillips 66	Laura Verduzco	Chevron
Michael Wang	Argonne National Laboratory	Tony Radich	US Dept of Agriculture
Anil Prabu	California Air Resources Board		

\*\* Workshop Co-Chairs

*The purpose of the workshop is for the free exchange of ideas, research, data etc. Sponsorship of or participation in the workshop by CRC and others does not reflect any endorsement of information presented at the workshop.*

\* Presentations and times subject to change

## **Specific Workshop Goals**

- Outline technical needs arising out of policy actions and ability of LCA analysis to meet those needs.
- Identify research results and activities that have come to light in the past two years that have helped to close data gaps previously outlined as outstanding issues.
- Identify data gaps, areas of uncertainties, validation/verification, model transparency, and data quality issues.
- Establish priorities for directed research to narrow knowledge gaps and gather experts' opinions on where scarce research dollars would best be spent.

**Tuesday, October 24, 2017**

**Argonne House**

5:00 - 6:00 PM

**Registration**

*Argonne House*

6:00 - 7:00 PM

**Welcome Reception**

*Cocktails and Hors d'Oeuvres at Argonne House*

**Wednesday, October 25, 2017**

**Auditorium**

7:00 - 8:00 AM

**Registration**

*Continental Breakfast*

8:00 AM

**Welcome from Workshop Chairs: Aaron Levy (US EPA), Robb De Kleine (Ford) and Jeff Farenback-Brateman (ExxonMobil)**

**Session 1**

**Retrospective Analysis and Implications for LCA**

*Chairpersons: Aaron Levy and Stephanie Searle*

*What can we learn from analysis of recent historical data, especially related land use change?*

9:00 AM

**A Review of Trends During the Biofuel Ramp Up**

Aaron Levy

US Environmental Protection Agency

9:30 AM

**An Exploration of Agricultural Land Use Change at Intensive and Extensive Margins: Recent Evidence and Implications for Biofuels Induced Land Use Change Modeling**

Farzad Taheripour

Purdue University

**10:00 AM - 10:20 AM BREAK**

10:20 AM

**Solar Energy Storage as a Byproduct of Protein Production**

Don Scott

National Biodiesel Board

10:50 AM

**Substitution in Vegetable Oil Markets**

Stephanie Searle

The International Council on Clean Transportation

11:20 AM

**Panel / Q&A**

Moderator: Jennifer Dunn

Argonne National Lab

**11:50 PM- 1:00 PM LUNCH**

**Session 2**

**LCA Methodology**

*Chairpersons: Anil Prabu and Amit Kapur*

*Highlighting important LCA methodological developments, issues, and perspectives*

1:00 PM

**Challenges in Modeling Early Stage Transport Fuel Technology**

Sabrina Spatari

Drexel University

1:30 PM

**Consequential LCA of Biofuels Using the GCAM Integrated Assessment Model**

Richard Plevin

University of California, Berkeley

2:00 PM

**Methodological Comparison of GREET, GHGenius and BioGrace**

Don O'Connor

(S&T)<sup>2</sup>

2:30 PM

**Panel / Q&A**

3:00 - 3:20 PM	<b>BREAK</b>		
<b>Session 3</b>	<b>Soil Organic Carbon</b> <i>Chairpersons: Jeremy Martin and Michael Wang</i> <i>How has our understanding of SOC developed and what does that mean for biofuel CI?</i>		
3:20 PM	<b>Estimating Soil Carbon Change of Biofuel Feedstocks in GREET Biofuel Life Cycle Analysis</b>	Zhangcai Qin	Argonne
3:50:00 PM	<b>An Overview of the “Crop Residues for Advanced Biofuels: Exploring Soil Carbon Effects” Workshop</b>	Doug Karlen	USDA ARS
4:20 PM	<b>Changes in Soil Management and Organic Carbon Sequestration in the Midwest Corn Production Over the Last 25 years</b>	David Clay	South Dakota University
4:50 PM	<b>Using the DayCent Model to Estimate Soil Carbon and GHG Fluxes for Bioenergy Assessments and the Annual U.S. GHG Emission Inventory</b>	John Field	Colorado State University
5:20 PM	<b>END OF DAY</b>		
6:30 PM	<b>Reception in Argonne House</b>		
7:00 PM	<b>Dinner in Argonne House</b>		

## Thursday, October 26, 2017

Auditorium

7:30 - 8:00 AM **Registration**  
*Continental Breakfast*

<b>Session 4</b>	<b>Alternative Carbon Modeling Methods</b> <i>Chairpersons: Jeff Farenback-Brateman, Robb De Kleine and David Lax</i>		
8:00 AM	<b>Illustrating a System Dynamics Approach to Life Cycle Assessment in NREL's Biomass Scenario Model and the BioLUC Models</b>	Steve Peterson	Lexidyne LLC
8:30 AM	<b>Assessment of the Additionality of GHG Savings with Biofuel Production</b>	Madhu Khanna and WeiWei Wang	University of Illinois
9:00 AM	<b>Stock-and-flow assessment of transportation fuels</b>	John DeCicco	University of Michigan
9:30 AM	<b>Panel / Q&amp;A</b>		
10:00- 10:20 AM	<b>BREAK</b>		
<b>Session 5</b>	<b>LCA of Emerging Technologies</b> <i>Chairpersons: Laura Verduzco and Devin O'Grady</i> <i>Where are the life cycle implications of new/emerging fuel pathways?</i>		
10:20 AM	<b>Cradle-to-Grave (C2G) Analysis of U.S. Light Duty Vehicle-Fuel Options</b>	Amgad Elgowainy	Argonne
10:50 AM	<b>Synthesis of Natural Gas CH<sub>4</sub> Emission Data and Prioritization of Emission Reduction Opportunities</b>	James Littlefield	NETL
11:20 AM	<b>Carbon Intensity of Novel Transport Fuels</b>	Adrian O'Connell	JRC
11:50 AM	<b>Potential Approaches Towards Quantifying Yields and GHG Emissions of Renewable Fuels from Co-processing in Petroleum Refineries</b>	Anil Prabu	CARB
12:20 PM	<b>End of Workshop, Closing Remarks</b>		
12:30 PM - 1:00 PM	<b>BOX LUNCH TO-GO</b>		

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