U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY




2019 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

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DEPARTMENT OF ENERGY NATIONAL LABORATORY ABBREVIATIONS

Ames	Ames Laboratory
ANL	Argonne National Laboratory
BNL	Brookhaven National Laboratory
FNAL	Fermi National Accelerator Laboratory
INL	Idaho National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LLNL	Lawrence Livermore National Laboratory
LANL	Los Alamos National Laboratory
NETL	National Energy Technology Laboratory
NREL	National Renewable Energy Laboratory
ORNL	Oak Ridge National Laboratory
PNNL	Pacific Northwest National Laboratory
PPPL	Princeton Plasma Physics Laboratory
SNL	Sandia National Laboratories
SRNL	Savannah River National Laboratory
SLAC	SLAC National Accelerator Facility
TJNAF	Thomas Jefferson National Accelerator Facility

WELCOME MESSAGE

Dear Project Peer Review Attendees,

On behalf of the U.S. Department of Energy, I would like to welcome you to the 2019 Bioenergy Technologies Office (BETO) Project Peer Review. This review is critical to the success of BETO's R&D mission, which focuses on high-impact, broadly applicable applied research and experimental development. R&D funded by BETO addresses technology challenges and uncertainties so industry can take on the subsequent scale-up and commercialization of these technologies.

This year's review will feature over 450 projects across five key technology areas, representing a combined value of more than $700 million. We believe in the importance of accountability and in being responsible stewards of taxpayer dollars. BETO actively manages our projects for the best possible outcomes, and the Peer Review is an invaluable opportunity for external stakeholders to rigorously evaluate the technical approach, progress, relevance, and overall merit of all the projects in the BETO portfolio.

Thank you to our reviewers and members of the Steering Committee for participating in this year's review. The 62 reviewers and Steering Committee members represent industry, academia, nonprofit organizations, and government. These reviewers include some of the most experienced and knowledgeable experts in the bioenergy community, and we look forward to their analysis and recommendations for our office's future direction.

We rely on the reviewers and members of the Steering Committee to provide an overall assessment of the focus and scope of each technology area, and we welcome their recommendations for strategic direction. Results of the Project Peer Review will inform programmatic decision making and impact future budget and funding opportunity decisions.

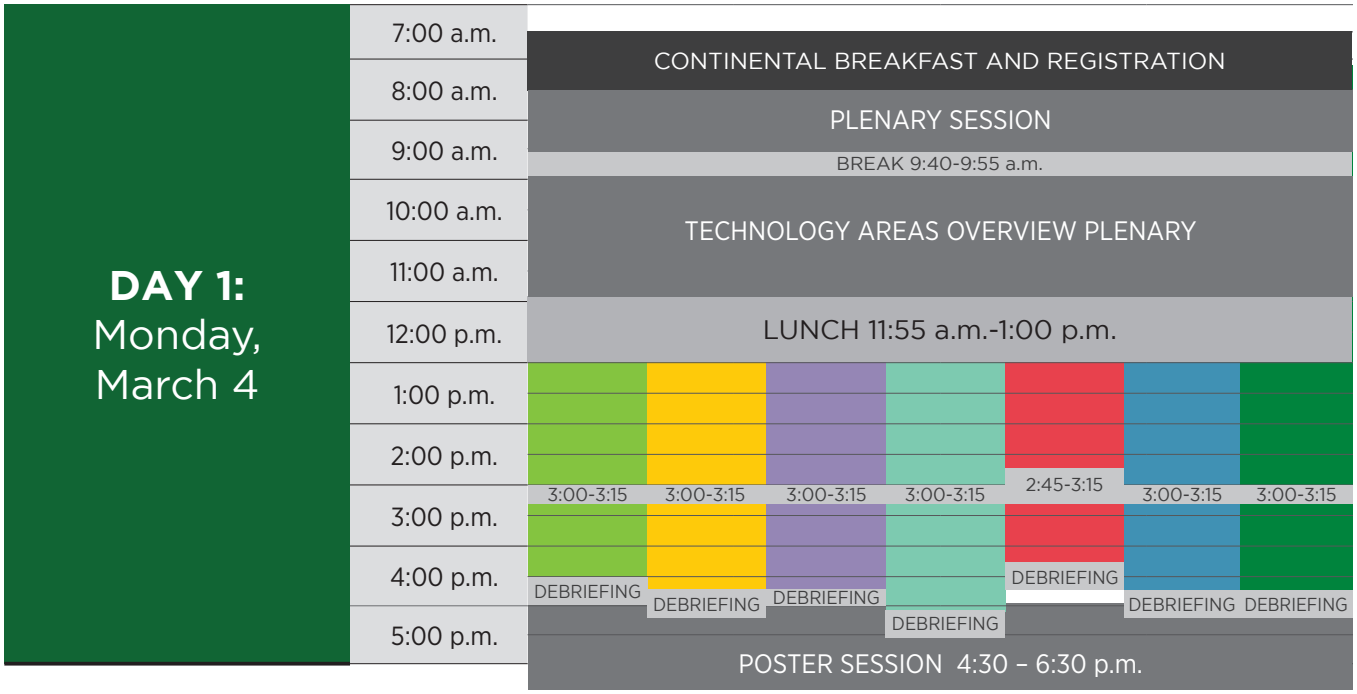
Results of the Project Peer Review will be presented during the Program Management Review on July 17, 2019 in Golden, CO. These results will be published in the 2019 Peer Review Final Report, which will be available to the public.

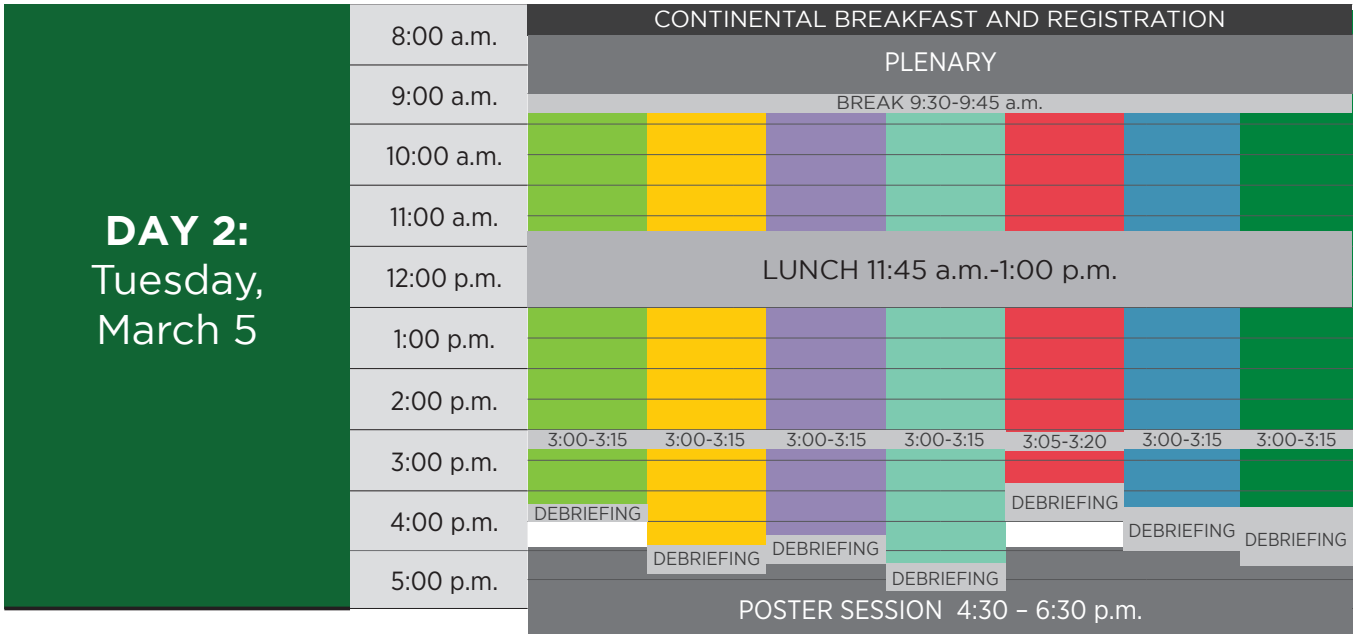
We thank you for your interest and your input!

Sincerely,

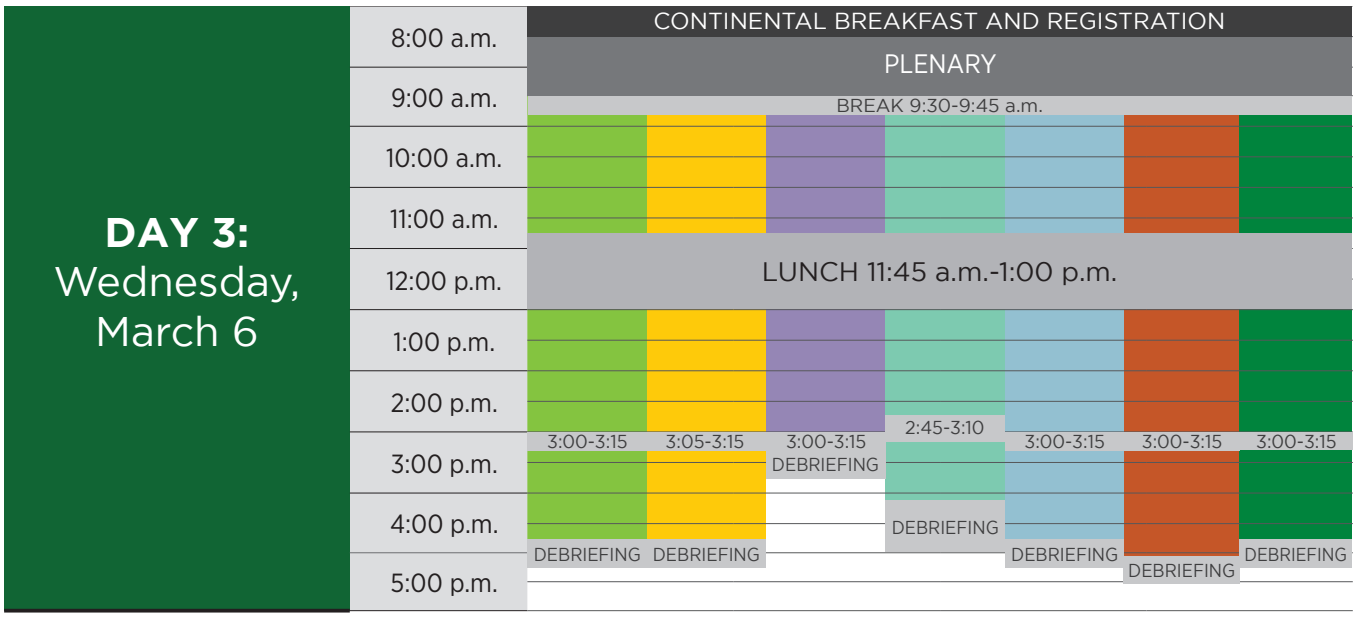
Jonathan Male
Director, Bioenergy Technologies Office
Energy Efficiency and Renewable Energy

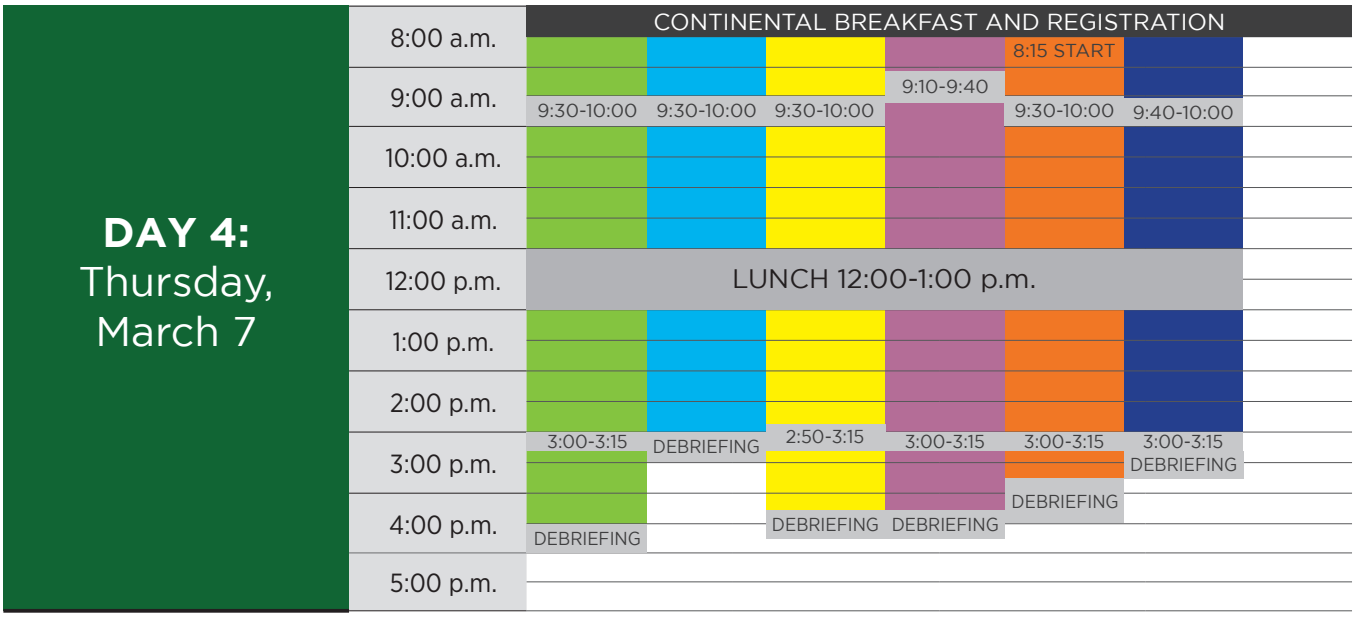
AGENDA AT A GLANCE





- REGISTRATION **Colorado PreFunction**
- PLENARY SESSIONS **Colorado E-F**
- ADVANCED ALGAL SYSTEMS **Denver 4**
- BIOCHEMICAL CONVERSION **Penrose I**
- CATALYTIC UPGRADING **Penrose II**
- ANALYSIS & SUSTAINABILITY **Denver 1-2**
- PERFORMANCE-ADVANTAGED BIOPRODUCTS AND SEPARATIONS **Colorado A-B**
- WASTE TO ENERGY **Denver 3**
- ADVANCED DEVELOPMENT AND OPTIMIZATION: INTEGRATION AND SCALE-UP **Denver 5-6**
- POSTER SESSION-MONDAY **Colorado G-H**
- POSTER SESSION-TUESDAY **Colorado G-J**





- ADVANCED ALGAL SYSTEMS **Denver 4**
- BIOCHEMICAL CONVERSION **Penrose I**
- CATALYTIC UPGRADING **Penrose II**
- ANALYSIS & SUSTAINABILITY **Denver 1-2**
- LIGNIN UTILIZATION **Colorado A-B**
- AGILE BIOFOUNDRY **Penrose I**
- FEEDSTOCK SUPPLY AND LOGISTICS **Denver 3**
- CO-OPTIMIZATION OF FUELS AND ENGINES **Denver 1-2**
- CARBON DIOXIDE UTILIZATION **Penrose II**
- FEEDSTOCK-CONVERSION INTERFACE CONSORTIUM **Denver 3**
- ADVANCED DEVELOPMENT AND OPTIMIZATION: ANALYSIS AND MODELING **Denver 5-6**

PLENARY SESSION AGENDA

Day 1 – MONDAY, MARCH 4, 2019

START TIME	END TIME	Presentation Topic	Presenter
7:30 a.m.	8:30 a.m.	BREAKFAST AND REGISTRATION	
8:30 a.m.	8:40 a.m.	Bioenergy Technologies Office Peer Review Welcome	*Nichole Fitzgerald*
8:40 a.m.	9:00 a.m.	DOE Office of Energy Efficiency and Renewable Energy Transportation Sector Overview	*Michael Berube*
9:00 a.m.	9:20 a.m.	Bioenergy Technologies Office Overview	*Jonathan Male*
9:20 a.m.	9:40 a.m.	Keynote Address: "Clear Vision is the Strategy"	*Michael Dishman*
9:40 a.m.	9:55 a.m.	BREAK	
9:55 a.m.	10:15 a.m.	Analysis and Sustainability Program Overview	*Alicia Lindauer*
10:15 a.m.	10:35 a.m.	Advanced Algal Systems Program Overview	*Alison Goss Eng*
10:35 a.m.	10:55 a.m.	Feedstock Supply and Logistics Program Overview	*Alison Goss Eng*
10:55 a.m.	11:35 a.m.	Conversion Program Overview	*Kevin Craig*
11:35 a.m.	11:55 a.m.	Advanced Development and Optimization Program Overview	*Jim Spaeth*
12:00 p.m.	1:00 p.m.	LUNCH	

Day 2 – TUESDAY, MARCH 5, 2019

START TIME	END TIME	Presentation Topic	Presenter
8:00 a.m.	8:30 a.m.	BREAKFAST	
8:30 a.m.	8:45 a.m.	Keynote Address by the Director of the Office of Energy and Environmental Policy, USDA	*Bill Hohenstein*
8:45 a.m.	9:05 a.m.	Bioeconomy Initiative: Implementation Framework and Interagency Collaborations	*Alison Goss Eng*
9:05 a.m.	9:30 a.m.	Industry Partnerships: Mechanisms, Opportunities, and Success Stories	*Liz Moore*
9:30 a.m.	9:45 a.m.	BREAK	

Day 3 – WEDNESDAY, MARCH 6, 2019

START TIME	END TIME	Presentation Topic	Presenter
8:00 a.m.	8:30 a.m.	BREAKFAST	
8:30 a.m.	8:50 a.m.	Carbon Management Framework	*Kevin Craig and Alison Goss Eng*
8:50 a.m.	9:10 a.m.	New Ideas in Waste Carbon Utilization: CO_2 and Wet Wastes	*Ian Rowe*
9:10 a.m.	9:30 a.m.	Recycling and Upcycling Plastics	*Jay Fitzgerald*
9:30 a.m.	9:45 a.m.	BREAK	

TECHNOLOGY AREA REVIEW SESSION AGENDAS

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	ADVANCED ALGAL SYSTEMS		
		Presentation	Organization	Presenter
1:00 p.m.	1:30 p.m.	Advanced Algal Systems: Session Introduction	*BETO*	*Daniel Fishman*
1:30 p.m.	1:55 p.m.	Hydrothermal Liquefaction Techno-economic Analysis	*PNNL*	*Sue Jones*
1:55 p.m.	2:30 p.m.	Algal Biofuels Techno-economic Analysis	*NREL*	*Ryan Davis*
2:30 p.m.	3:00 p.m.	Microalgae Analysis	*PNNL*	*Mark Wigmosta*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Biomass Composition	*NREL*	*Lieve Laurens*
3:45 p.m.	4:30 p.m.	DISCOVR	*PNNL/LANL/NREL/ SNL*	*Michael Huesemann*
4:30 p.m.	5:00 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	9:50 a.m.	Advanced Algal Systems: Opening Remarks	*BETO*	*Daniel Fishman*
9:50 a.m.	10:20 a.m.	Multi-scale Characterization of Improved Algae Strains	*LANL*	*Taraka Dale*
10:20 a.m.	10:50 a.m.	Algae Biotechnology Partnership	*NREL*	*Michael Guarnieri*
10:50 a.m.	11:20 a.m.	Genetic Blueprint of Microalgae	*LANL/LBNL*	*Shawn Starkenburg*
11:20 a.m.	11:50 a.m.	Robust Genome Engineering Tools for the Algal Research Community	*LANL*	*Blake Hovde*
11:50 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Functional Characterization of Cellular Metabolism	*LANL*	*Scott Twary*
1:30 p.m.	2:00 p.m.	Cyanobacteria Photosynthetic Energy Platform	*NREL*	*Jianping Yu*
2:00 p.m.	2:30 p.m.	Algal Translational Genomics	*LANL*	*Shawn Starkenburg*
2:30 p.m.	3:00 p.m.	SOFAST: Streamlined Optimization of Filamentous Arthrospira/Spirulina Traits	*Lumen*	*Damian Carrieri*
3:00 p.m.	3:15 p.m.	BREAK		

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Day 2: TUESDAY, MARCH 5, 2019

START TIME	END TIME	ADVANCED ALGAL SYSTEMS		
		Presentation	Organization	Presenter
3:15 p.m.	3:45 p.m.	Microbiome Engineering of Desmodesmus to Alleviate Carbon Limitation	*LLNL*	Xavier Mayali
3:45 p.m.	4:15 p.m.	A Comprehensive Strategy for Stable, High Productivity Cultivation of Microalgae with Controllable Biomass Composition	*University of Toledo*	*Sridhar Viamajala*
4:15 p.m.	4:30 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 3: WEDNESDAY, MARCH 6, 2019

9:45 a.m.	10:15 a.m.	Prevention of Low Productivity Periods in Large-Scale Microalgae Cultivation	*Global Algae Innovations, Inc.*	*Aga Pinowska*
10:15 a.m.	10:45 a.m.	Developing Advanced Genetic and Synthetic Biology Tools for Improved Algae Productivity	*University of California, San Diego*	*Stephen Mayfield*
10:45 a.m.	11:15 a.m.	High-Throughput Directed Evolution of Marine Microalgae and Phototrophic Consortia for Improved Biomass Yields	*Colorado School of Mines*	*Matthew Posewitz*
11:15 a.m.	11:45 a.m.	Success Through Synergy: Increasing Cultivation Yield and Stability with Rationally Designed Consortia	*New Mexico Consortium*	*Alina Corcoran*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Direct Photosynthetic Production of Biodiesel by Growth-Decoupled Cyanobacteria	*Arizona State University*	*Wim Vermass*
1:30 p.m.	2:00 p.m.	A Novel Platform for Algal Biomass Production Using Cellulosic Mixotrophy	*Arizona State University*	*Pete Lammers*
2:00 p.m.	2:30 p.m.	Attached Periphytic Algae Production and Analysis	*SNL*	*Ryan Davis*
2:30 p.m.	3:00 p.m.	Rewiring Algal Carbon Energetics for Renewables (RACER)	*Rewiring Algal Carbon Energy*	*Lieve Laurens*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Development of Algal Biomass Yield Improvements in an Integrated Process	*Global Algae Innovations, Inc.*	*David Hazlebeck*
3:45 p.m.	4:15 p.m.	Integrated Low Cost and High Yield Microalgal Biofuel Intermediates Production	*MicroBio Engineering*	*John Benemann*

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Day 4: THURSDAY, MARCH 7, 2019

START TIME	END TIME	ADVANCED ALGAL SYSTEMS		
		Presentation	Organization	Presenter
4:15 p.m.	4:45 p.m.	Production of Biocrude in an Advanced Photobioreactor-Based Biorefinery	*Algenol*	*Ron Chance*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		
8:30 a.m.	9:00 a.m.	PACE: Producing Algae for Coproducts and Energy	*Colorado School of Mines*	*Matthew Posewitz*
9:00 a.m.	9:30 a.m.	Marine Algae Industrialization Consortium (MAGIC)	*Duke University*	*Zackary Johnson*
9:30 a.m.	10:00 a.m.	BREAK		
10:00 a.m.	10:30 a.m.	Integrated Pest Management for Early Detection Algal Crop Production	*University of California, San Diego*	*Robert Pomeroy*
10:30 a.m.	11:00 a.m.	Continuous Biological Protection and Control of Algal Pond Productivity/Algal protective probiotics	*LLNL*	*Rhona Stuart*
11:00 a.m.	11:30 a.m.	Algal Feedstocks Logistics and Handling	*INL*	*Lynn Wendt*
11:30 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Atmospheric CO_2 Capture and Membrane Delivery	*Arizona State University*	*Bruce Rittman*
1:30 p.m.	2:00 p.m.	Algae Production CO_2 Absorber with Immobilized Carbonic Anhydrase	*Global Algae Innovations, Inc.*	*David Hazlebeck*
2:00 p.m.	2:45 p.m.	Algae Testbed Public-Private Partnership (ATP3) - a RAFT Partnership	*Arizona State University*	*John McGowen*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	4:00 p.m.	Regional Algal Feedstock Testbed Partnership	*University of Arizona*	*Kimberly Ogden*
4:00 p.m.	4:30 p.m.	Algae Technology Educational Consortium	*NREL*	*Cindy Gerk*
4:30 p.m.	5:00 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	BIOCHEMICAL CONVERSION		
		Presentation	Organization	Presenter
1:00 p.m.	1:10 p.m.	Biochemical Conversion: Session Introduction	*BETO*	*Ian Rowe*
1:10 p.m.	1:35 p.m.	Biochemical Platform Analysis	*NREL*	*Ryan Davis*
1:35 p.m.	2:00 p.m.	Low Temperature Advanced Deconstruction	*NREL*	*Xiaowen Chen*
2:00 p.m.	2:30 p.m.	Enzyme Engineering and Optimization	*NREL*	*Mike Himmel*
2:30 p.m.	3:00 p.m.	Continuous Enzymatic Hydrolysis Development	*NREL*	*Jim McMillan*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Biological Upgrading of Sugars	*NREL*	*Jeff Linger*
3:45 p.m.	4:15 p.m.	Targeted Microbial Development	*NREL*	*Min Zhang*
4:15 p.m.	4:45 p.m.	Bench Scale Integration	*NREL*	*Nancy Dowe*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	10:15 a.m.	Biochemical Process Modeling and Simulation	*NREL*	*Michael Crowley*
10:15 a.m.	10:45 a.m.	Analytical Development and Support	*NREL*	*Ed Wolfrum*
10:45 a.m.	11:15 a.m.	Advanced Supervisory Control and Data Acquisition (SCADA) for Biochemical Process Integration (with Bend)	*PNNL*	*Jim Collett*
11:15 a.m.	11:45 a.m.	Bioconversion of Algal Carbohydrates and Proteins to Fuels	*SNL*	*Ryan Davis*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Combined Algae Processing (CAP) Process Research	*NREL*	*Phil Pienkos*
1:30 p.m.	2:00 p.m.	Coproduction of Chemicals and Fuels Enabled by Hybrid Conversion of Lignin and Bioconversion Intermediates	*PNNL*	*Jim Collett*
2:00 p.m.	2:30 p.m.	Fungal Genomics - Genetics	*PNNL*	*Jon Magnuson*
2:30 p.m.	3:00 p.m.	Cell Free & Immobilization Technologies (CFIT)	*NREL*	*Yannick Bomble*
3:00 p.m.	3:15 p.m.	BREAK		

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Day 2: TUESDAY, MARCH 5, 2019

START TIME	END TIME	BIOCHEMICAL CONVERSION		
		Presentation	Organization	Presenter
3:15 p.m.	3:45 p.m.	Polyethylene Terephthalate Upcycling	*NREL*	*Gregg Beckham*
3:45 p.m.	3:55 p.m.	Introduction to External Funding Opportunity Announcements	*BETO*	*Ian Rowe*
3:55 p.m.	4:25 p.m.	Engineered Reversal of the β-Oxidation Cycle in Clostridia for the Synthesis of Fuels and Chemicals	*Northwestern University*	*Michael Koepke*
4:25 p.m.	4:50 p.m.	Improving Tolerance of Yeast to Lignocellulose-Derived Feedstocks and Products	*Massachusetts Institute of Technology*	*Felix Lam*
4:50 p.m.	5:20 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 3: WEDNESDAY, MARCH 6, 2019

9:45 a.m.	10:15 a.m.	Continuous Membrane Assisted IBE fermentation from AVAP Cellulosic Sugars	*American Process Inc.*	*Vesa Pylkkanen*
10:15 a.m.	10:45 a.m.	Production of High Oil, Transgene-Free Camelina Sativa Plants	*Yield10 Bioscience*	*Kristi Snell*
10:45 a.m.	11:15 a.m.	Engineering Clostridia for n-Butanol Production from Lignocellulosic Biomass and CO_2	*The Ohio State University*	*Shang-Tian Yang*
11:15 a.m.	11:45 a.m.	Production of High Performance Lubricants from Cellulosic Sugar	*Cargill*	*Tom McMullin*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:25 p.m.	Engineering Thermophiles to Produce Drop-in fuels from Syngas	*Kiverdi*	*John Reed*
1:25 p.m.	1:50 p.m.	Second-Generation Mixotrophy for Highest Yield and Least Expensive Biochemical Production	*White Dog Labs Inc.*	*Shawn Jones*
1:50 p.m.	2:15 p.m.	Fermentative Production of Tricarboxylic Acid Cycle-Derived Chemicals Using Cellulosic Sugars	*Lygos, Inc.*	*Jeffrey Dietrich*
2:15 p.m.	2:40 p.m.	Development of a Sustainable Green Chemistry Platform for Production of Acetone	*LanzaTech, Inc.*	*Michael Koepke*
2:40 p.m.	3:05 p.m.	Process Intensification for the Reduced Commercial CAPEX of Biofuels Production (PRICE CAP) Using Dynamic Metabolic Control	*Duke University*	*Mike Lynch*
3:05 p.m.	3:15 p.m.	BREAK		

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Day 3: WEDNESDAY, MARCH 6, 2019

START TIME	*END TIME*	BIOCHEMICAL CONVERSION		
		Presentation	Organization	Presenter
3:15 p.m.	3:45 p.m.	Integrated Process for Commercial Production of Farnesene, a Versatile Platform Chemical, from Domestic Lignocellulosic Feedstock	*Amyris, Inc.*	*Quinn Mitrovich*
3:45 p.m.	4:15 p.m.	Bio-syngas to Fatty Alcohols (C6-14) as a Pathway to Fuels	*Dow Chemical Company*	*Devon Rosenfeld*
4:15 p.m.	4:45 p.m.	Alkaline-Oxidative Pretreatment of Woody Biomass for Optimal Co-Product	*Michigan State University*	*Eric Hegg*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	CATALYTIC UPGRADING		
		Presentation	Organization	Presenter
1:00 p.m.	1:30 p.m.	Catalytic Upgrading: Session Introduction	*BETO*	*Jeremy Leong and Trevor Smith*
1:30 p.m.	2:00 p.m.	Overview of Chemical Catalysis for Bioenergy Consortium	*NREL*	*Josh Schaidle*
2:00 p.m.	2:30 p.m.	Catalyst Cost Model Development	*NREL/PNNL*	*Josh Schaidle*
2:30 p.m.	3:00 p.m.	ChemCatBio Data Hub	*NREL*	*Carrie Farberow*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:30 p.m.	Biochemical Platform Analysis	*NREL*	*Ryan Davis*
3:30 p.m.	4:15 p.m.	Catalytic Upgrading of Biochemical Intermediates	*NREL/PNNL/ORNL/ LANL*	*Richard Elander*
4:15 p.m.	4:45 p.m.	Direct Catalytic Conversion of Cellulosics	*NREL*	*Derek Vardon*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	10:25 a.m.	Thermochemical Platform Analysis	*NREL*	*Abhijit Dutta*
10:25 a.m.	11:05 a.m.	Liquid Fuels via Upgrading of Indirect Liquefaction Intermediates	*NREL/PNNL/ORNL*	*Dan Ruddy*
11:05 a.m.	11:45 a.m.	Catalytic Upgrading of Pyrolysis Products	*NREL*	*Josh Schaidle*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:25 p.m.	CO_2 Utilization: Thermo- and Electro-Catalytic Routes to Fuels and Chemicals	*NREL*	*Jack Ferrell*
1:25 p.m.	1:50 p.m.	Hybrid Electro- and Thermo-Catalytic Upgrading of CO_2 to Fuels and C2+ Chemicals	*ORNL*	*Adam Rondinone*
1:50 p.m.	2:20 p.m.	Catalyst Deactivation Mitigation for Biomass Conversion	*PNNL*	*Huamin Wang*
2:20 p.m.	3:00 p.m.	Consortium for Computational Physics and Chemistry	*ORNL/NREL/ANL/ PNNL/NETL*	*James Parks II*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	4:00 p.m.	Advanced Catalyst Synthesis and Characterization	*NREL/ORNL/ANL/ SNL*	*Susan Habas*
		Introduction to Directed Funding Awards (DFA)	*BETO*	*Jeremy Leong and Trevor Smith*
4:00 p.m.	4:15 p.m.	DFA - Comprehensive Characterization of Mixed Metal Oxide Catalysts	*NREL/GEVO*	*Susan Habas*
4:15 p.m.	4:30 p.m.	DFA - Enhanced Catalyst Durability and Sulfur Tolerance by Atomic Layer Deposition	*NREL/ALD Nanosolutions/ Johnson Matthey*	*Derek Vardon*

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Day 2: TUESDAY, MARCH 5, 2019				
START TIME	*END TIME*	**CATALYTIC UPGRADING**		
		Presentation	Organization	Presenter
4:30 p.m.	4:45 p.m.	DFA - Advanced Characterizations to Accelerate Commercial Catalyst Development	*ORNL/Vertimass*	*Zhenglong Li*
4:45 p.m.	5:00 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		
Day 3: WEDNESDAY, MARCH 6, 2019				
9:45 a.m.	10:00 a.m.	DFA - Catalyst Development for Selective Electrochemical Reduction of CO_2 to High-value Chemical Precursors	*NREL/Opus - 12*	*Fred Baddour*
10:00 a.m.	10:15 a.m.	CCB DFAs: Low Pressure Hydrogenolysis Catalysts for Bioproduct Upgrading	*PNNL/Visolis*	*Karthi Ramasamy*
10:15 a.m.	10:30 a.m.	CCB DFAs: Terephthalic Acid Synthesis from Ethanol via p-Methyl Benzaldehyde	*PNNL/Lanzatech*	*Karthi Ramasamy*
10:30 a.m.	10:45 a.m.	CCB DFAs: Tactical Aviation Fuels	*LANL/GEVO*	*Andrew Sutton*
10:45 a.m.	11:00 a.m.	CCB DFAs: Improved Value of the Gasoline and Fuel Oil Co-Product Fractions w/LanzaTech	*PNNL/Lanzatech*	*Rob Dagle*
11:00 a.m.	11:15 a.m.	CCB DFAs: Catalytic Process Intensification of Bio-Renewable Surfactants Platform	*LANL/Sironix*	*Andrew Sutton*
11:15 a.m.	11:30 a.m.	Introduction to Funding Opportunity Announcements	*BETO*	*Jeremy Leong and Trevor Smith*
11:30 a.m.	11:45 a.m.	Morning Wrap Up		
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	THF Co-solvent Fractionation to Fuel Precursors (Furfural, Levulinic Acid, 5-HMF)	*University of California - Riverside*	*Charles Wyman*
1:30 p.m.	2:00 p.m.	One-Step High-Yield Production of Fungible Gasoline, Diesel, and Jet Fuel Blend Stocks from Ethanol without Added Hydrogen	*Vertimass LLC*	*John Hannon*
2:00 p.m.	2:30 p.m.	Catalytic Processes for Production of a,w-diols from Lignocellulosic Biomass	*University of Wisconsin*	*George Huber*
2:30 p.m.	3:00 p.m.	Condensed Phase Catalysis Technology for Fuels and Carbon Products	*University of Tennessee*	*David Harper*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	ANALYSIS AND SUSTAINABILITY		
		Presentation	Organization	Presenter
1:00 p.m.	1:15 p.m.	Analysis and Sustainability: Session Introduction	*BETO*	*Alicia Lindauer*
1:15 p.m.	1:45 p.m.	SI Systems-Level Analysis	*NREL-SI*	*Amy Schwab*
1:45 p.m.	2:30 p.m.	Strategic Analysis support	*NREL*	*Mary Biddy*
2:30 p.m.	3:00 p.m.	Biofuels National Strategic Benefits Analysis	*ORNL*	*Paul Leiby*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Bioeconomy Scenario Analysis and Modeling	*NREL*	*Emily Newes*
3:45 p.m.	4:15 p.m.	Bioproducts Transition System Dynamics	*NREL*	*Rebecca Hanes*
4:15 p.m.	4:45 p.m.	Scientific Methods for Biomass Reference Scenarios	*ORNL*	*Keith Kline*
4:45 p.m.	5:05 p.m.	Bioenergy Knowledge Discovery Framework	*ORNL*	*Aaron Myers*
5:05 p.m.	5:35 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	9:50 a.m.	Analysis and Sustainability: Opening Remarks	*BETO*	*Alicia Lindauer*
9:50 a.m.	10:30 a.m.	GREET Deployment and Biofuel Pathway Research and Analysis	*ANL*	*Michael Wang*
10:30 a.m.	11:00 a.m.	Carbon Cycling, Environmental & Rural Economic Impacts of Collecting & Processing Specific Woody Feedstocks in Biofuels	*NCSU*	*Steve Kelley*
11:00 a.m.	11:30 a.m.	GCAM Bioenergy and Land Use Modeling and Directed R&D	*PNNL*	*Marshall Wise*
11:30 a.m	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Bioeconomy Carbon Flux Assessment – BECCS	*ORNL*	*Matthew Langholtz*
1:30 p.m.	2:00 p.m.	Harnessing the Bioeconomy for Carbon Drawdown: Potential and Innovation Needs	*LLNL*	*AJ Simon*
2:00 p.m.	2:30 p.m.	Integrated Life Cycle Sustainability Analysis (ILCSA)	*NREL*	*Patrick Lamers*
2:30 p.m.	3:00 p.m.	Quantifying and Visualizing Progress Towards Sustainability	*ORNL*	*Esther Parish*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Water Resource Management for Bioenergy and Bioproducts	*ANL*	*May Wu*
3:45 p.m.	4:15 p.m.	Biofuel Air Emissions Analysis	*NREL*	*Danny Inman*

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Day 2: TUESDAY, MARCH 5, 2019				
START TIME	*END TIME*	**ANALYSIS AND SUSTAINABILITY**		
		Presentation	Organization	Presenter
4:15 p.m.	4:45 p.m.	Collaborations to Assess Land Effects of Bioenergy	*ORNL*	*Keith Kline*
4:45 p.m.	5:15 p.m.	Biofuels Information Center	*NREL*	*Kristi Moriarty*
5:15 p.m.	5:45 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		
Day 3: WEDNESDAY, MARCH 6, 2019				
9:45 a.m.	9:50 a.m	Introduction	*BETO*	*Alicia Lindauer*
9:50 a.m.	10:35 a.m	Enabling Sustainable Landscape Design for Continual Improvement of Operating Bioenergy Supply Systems	*Antares Group Inc.*	*Kevin Comer*
10:35 a.m.	11:05 a.m	Integrated Landscape Management	*INL*	*Mike Griffel*
11:05 a.m.	11:35 a.m	Economic Analysis of Risk	*INL*	*Jason Hansen*
11:35 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:45 p.m.	Biomass Production and Nitrogen Recovery	*ANL*	*Cristina Negri*
1:45 p.m.	2:15 p.m.	Short Rotation Woody Biomass Sustainability	*ORNL*	*Natalie Griffiths*
2:15 p.m.	2:45 p.m.	Sustainable Biomass through Forest Restoration	*PNNL*	*Mark Wigmosta*
2:45 p.m.	3:10 p.m.	BREAK		
3:10 p.m.	3:40 p.m.	Visualizing Ecosystem Service Portfolios of Agricultural and Forestry Biomass Production	*ORNL*	*Yetta Jager*
3:40 p.m.	4:10 p.m.	Spatially Resolved Measurements of Environmental Sustainability Indicators For Bioenergy	*ORNL*	*Natalie Griffiths*
4:10 p.m.	5:00 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	*END TIME*	PERFORMANCE-ADVANTAGED BIOPRODUCTS AND SEPARATIONS		
		Presentation	Organization	Presenter
1:00 p.m.	1:15 p.m.	Separations Consortium: Session Introduction	*BETO*	*Nichole Fitzgerald*
1:15 p.m.	1:35 p.m.	Separations Consortium - Overview	*ANL*	*Jennifer Dunn*
1:35 p.m.	2:10 p.m.	Separations Consortium - Separations for Biochemical Processes	*NREL*	*Eric Karp*
2:10 p.m.	2:45 p.m.	Separations Consortium - Separations for Thermochemical Processes	*NREL*	*Kim Magrini*
2:45 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Separations Consortium - Analysis	*NREL*	*Mary Biddy*
3:45 p.m.	4:15 p.m.	Separations Consortium - Overview of CRADAs	*LBNL*	*Todd Pray*
4:15 p.m.	4:45 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	9:50 a.m.	Performance Advantaged Bioproducts: Session Introduction	*BETO*	*Nichole Fitzgerald*
9:50 a.m.	10:20 a.m.	Biomass Conversion to Acrylonitrile Monomer-Precursor for Production of Carbon Fibers	*Southern Research Institute*	*Amit Goyal*
10:20 a.m.	10:50 a.m.	Renewable Carbon Fibers Consortium	*NREL*	*Mary Biddy*
10:50 a.m.	11:20 a.m.	Melt-Stable Engineered Lignin Thermoplastic: a Printable Resin	*ORNL*	*Amit Naskar*
11:20 a.m.	11:50 a.m.	Bioderived Materials for Large-Scale Additive Manufacturing	*ORNL*	*Erin Webb*
11:50 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:05 p.m.	Performance Advantaged Bioproducts: A Consortium Approach – Opening Remarks	*BETO*	*Nichole Fitzgerald*
1:05 p.m.	1:35 p.m.	Analysis in Support of Novel Biobased Products and Functional Replacements	*NREL*	*Mary Biddy*
1:35 p.m.	2:05 p.m.	Inverse Biopolymer Design Through Machine Learning and Molecular Simulation	*NREL*	*Mike Crowley*

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Day 2: TUESDAY, MARCH 5, 2019

START TIME	*END TIME*	PERFORMANCE-ADVANTAGED BIOPRODUCTS AND SEPARATIONS		
		Presentation	Organization	Presenter
2:05 p.m.	2:35 p.m.	Performance-Advantaged Bioproducts via Selective Biological and Catalytic Conversions	*NREL*	*Gregg Beckham*
2:35 p.m.	3:05 p.m.	Analysis in Support of Performance Advantaged Bio-Products from Catalytic Fast Pyrolysis	*NREL*	*Mark Nimlos*
3:05 p.m.	3:20 p.m.	BREAK		
3:20 p.m.	3:50 p.m.	Tailored Polymers through Rational Monomer Development	*LANL*	*Andrew Sutton*
3:50 p.m.	4:30 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	WASTE TO ENERGY		
		Presentation	Organization	Presenter
1:00 p.m.	1:10 p.m.	Waste to Energy: Session Introduction	*BETO*	*Mark Philbrick/ David Babson*
1:10 p.m.	1:40 p.m.	Thermochemical Interface (for Algae and HTL)	*PNNL*	*Dan Anderson*
1:40 p.m.	2:10 p.m.	Bench Scale HTL of Wet Waste Feedstocks	*PNNL*	*Justin Billing*
2:10 p.m.	2:40 p.m.	Analysis and Sustainability Interface - PNNL	*PNNL*	*Lesley Snowden-Swan*
2:40 p.m.	3:00 p.m.	Reviewer networking opportunity		
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Production of Methane From Organic Waste Streams with Novel Biofilm-Enhanced Anaerobic Membrane Bioreactors	*ANL, LANL*	*Meltem Urgun-Demirtas*
3:45 p.m.	4:15 p.m.	Biomethanation to Upgrade Biogas to Pipeline Grade Methane	*NREL*	*Kevin Harrison*
4:15 p.m.	4:45 p.m.	Modular Microbial Electromethanogenesis Flow Reactor for Biogas Upgrading	*LLNL*	*Sarah Baker*
4:45 p.m.	5:10 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	10:15 a.m.	Waste-to-Energy: Feedstock Evaluation and Biofuels Production Potential - PNNL	*PNNL*	*Tim Seiple*
10:15 a.m.	10:45 a.m.	Waste-to-Energy: Feedstock Evaluation and Biofuels Production Potential - NREL	*NREL*	*Anelia Milbrandt*
10:45 a.m.	11:15 a.m.	Waste to Energy System Simulation Model	*NREL*	*Danny Inman*
11:15 a.m.	11:45 a.m.	Panelist free time		
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Arrested Methanogenesis for Volatile Fatty Acid Production	*ANL*	*Meltem Urgun-Demirtas*
1:30 p.m.	2:00 p.m.	Separations in Support of Arresting Anaerobic Digestion	*NREL*	*Eric Karp*
2:00 p.m.	2:30 p.m.	Reverse Engineering Anaerobic Digestion of Wet Waste for Biofuels Intermediates and Bioproducts	*NREL*	*Steve Decker*
2:30 p.m.	3:00 p.m.	Analysis in Support of Biofuels and Bioproducts from Organic Wet Waste Feedstocks	*NREL*	*Ling Tao*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Biogas to Liquid Fuels and Chemicals Using a Methanotrophic Microorganism	*NREL*	*Mike Guarnieri*
3:45 p.m.	4:15 p.m.	Biogas Valorization: Development of a Biogas-to-Muconic Acid Bioprocess	*NREL*	*Mike Guarnieri*
4:15 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 1: MONDAY, MARCH 4, 2019

START TIME	END TIME	ADVANCED DEVELOPMENT AND OPTIMIZATION: INTEGRATION AND SCALE-UP		
		Presentation	Organization	Presenter
1:00 p.m.	1:30 p.m.	Advanced Development and Optimization: Integration and Scale-Up – Session Introduction	*BETO*	*Liz Moore*
1:30 p.m.	2:00 p.m.	An Affordable Advanced Biomass Cookstove with Thin Film Thermoelectric Generator	*LBNL*	*Vi Rapp*
2:00 p.m.	2:30 p.m.	Development and Standardization of Techniques for Bio-oil Characterization	*NREL*	*Jack Ferrell*
2:30 p.m.	3:00 p.m.	The Engineering of Catalyst Scale Up	*NREL*	*Fred Baddour*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	LIBERTY - Launch of an Integrated Bio-refinery with Eco-sustainable and Renewable Technologies in Y2009	*POET Project Liberty, LLC*	*Mike Dishman*
3:45 p.m.	4:15 p.m.	Biomass - Feedstock User Facility	*INL*	*Neal Yancey*
4:15 p.m.	4:45 p.m.	Improved Feeding and Residual Solids Recovery System for IBR	*Thermochemical Recovery International Inc.*	*Ravi Chandran*
4:45 p.m.	5:10 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 2: TUESDAY, MARCH 5, 2019

9:45 a.m.	10:15 a.m.	Advanced Development and Optimization: Integration and Scale-Up – Opening Remarks	*BETO*	*Liz Moore*
10:15 a.m.	10:45 a.m.	Biomass Gasification for Chemicals Production Using Chemical Looping Techniques	*The Ohio State University*	*Andrew Tong*
10:45 a.m.	11:15 a.m.	Building Blocks from Biocrude: High Value Methoxyphenols	*Research Triangle Institute*	*Ofei Mante*
11:15 a.m.	11:45 a.m.	Pilot-Scale Algal Oil Production	*Global Algae Innovations*	*David Hazlebeck*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Integration and Scale Up - NREL	*NREL*	*Kristin Smith*
1:30 p.m.	2:00 p.m.	Strategies for Co-processing in Refineries	*NREL*	*Robert Baldwin*
2:00 p.m.	2:30 p.m.	Improved Hydrogen Utilization and Carbon Recovery for Higher Efficiency Thermochemical Bio-oil Pathways	*Research Triangle Institute*	*David Dayton*
2:30 p.m.	3:00 p.m.	Low Carbon Hydrocarbon Fuels From Industrial Off Gas	*LanzaTech, Inc.*	*Laurel Harmon*
3:00 p.m.	3:15 p.m.	BREAK		

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START TIME	END TIME	ADVANCED DEVELOPMENT AND OPTIMIZATION: INTEGRATION AND SCALE-UP		
		Presentation	Organization	Presenter
3:15 p.m.	3:45 p.m.	Small Scale Decentralized Fuel Production Facilities Via Advanced Heat Exchanger-Enabled Biorefineries	*ThermoChem Recovery International, Inc.*	*Ravi Chandran*
3:45 p.m.	4:15 p.m.	Converting MSW Into Low-Cost, Renewable Jet Fuel	*Fulcrum Bioenergy*	*Pete Tiverios*
4:15 p.m.	4:45 p.m.	Woody Biomass Biorefinery Capability Development	*Red Rocks Biofuels*	*David Manternach*
4:15 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		
Day 3: WEDNESDAY, MARCH 6, 2019				
9:45 a.m.	10:15 a.m.	Advanced Development and Optimization: Integration and Scale-Up – Opening Remarks	*BETO*	*Liz Moore*
10:15 a.m.	10:45 a.m.	Upgrading of Stillage Syrup into Single Cell Protein for Aquaculture Feed	*White Dog Labs*	*Shawn Jones*
10:45 a.m.	11:15 a.m.	Pilot-Scale Biochemical and Hydrothermal Integrated Biorefinery (IBR) for Cost-Effective Production of Fuels and Value Added Products	*South Dakota School of Mines and Technology*	*Rajesh Shende*
11:15 a.m.	11:45 a.m.	Multi-stream Integrated Biorefinery Enabled by Waste Processing	*Texas A&M Agrilife Research*	*Joshua Yuan*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Hydrothermal Processing of Biomass	*PNNL*	*Dan Anderson*
1:30 p.m.	2:00 p.m.	HYPOWERS: Hydrothermal Processing of Wastewater Solids	*Water Research Foundation*	*Jeff Moeller*
2:00 p.m.	2:30 p.m.	Rialto Advanced Pyrolysis Integrated Biorefinery	*Rialto Bioenergy Facility LLC*	*Yaniv Scherson*
2:30 p.m.	3:00 p.m.	LBNL ABPDU Support	*LBNL*	*Todd Pray*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Pilot Scale Integration	*NREL*	*Dan Schell*
3:45 p.m.	4:15 p.m.	Advanced Biofuels and Bioproducts with AVAP	*AVAPCO LLC*	*Theodora Retsina*
4:15 p.m.	4:45 p.m.	Materials Degradation in Biomass Derived Oil	*ORNL*	*Jim Keiser*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 3: WEDNESDAY, MARCH 6, 2019

START TIME	END TIME	FEEDSTOCK SUPPLY AND LOGISTICS		
		Presentation	Organization	Presenter
9:45 a.m.	10:00 a.m.	Feedstock Supply and Logistics: Session Introduction	*BETO*	*Mark Elless*
10:15 a.m.	10:45 a.m.	Feedstock Supply Chain Analysis	*INL*	*David Thompson*
10:45 a.m.	11:15 a.m.	Supply Scenario Analysis	*ORNL*	*Matthew Langholtz*
11:15 a.m.	11:45 a.m.	Resource Mobilization	*INL*	*Damon Hartley*
11:45 a.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Development of a Wet Logistics System for Bulk Corn Stover	*INL*	*Lynn Wendt*
1:30 p.m.	2:00 p.m.	Size Reduction, Drying and Densification of High Moisture Biomass	*INL*	*Jaya Tumuluru*
2:00 p.m.	2:30 p.m.	Biomass Supply Chain Risk Standards	*INL*	*Rachel Emerson*
2:30 p.m.	3:00 p.m.	Sensors and Measurement in Harvest & Collection for Rapid Quality Control of Corn Stover	*INL*	*Bill Smith*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:35 p.m.	Demonstration of an Advanced Supply Chain for Lower Cost, Higher Quality Biomass Feedstock Delivery	*FDC Enterprises*	*Kevin Comer*
3:35 p.m.	3:55 p.m.	Next Generation Logistics Systems for Delivering Optimal Biomass Feedstocks to Biorefining Industries in the Southeastern United States	*University of Tennessee*	*Tim Rials*
3:55 p.m.	4:15 p.m.	Improved Advanced Biomass Logistics Utilizing Woody and other Feedstocks in the Northeast and Pacific Northwest	*The Research Foundation of SUNY/ SUNY-ESF*	*Tim Volk*
4:15 p.m.	4:45 p.m.	CEMAC: Evaluation of Agricultural Equipment Manufacturing for a Bio-based Economy	*NREL*	*Chad Augustine*
4:45	5:05	Waste to Wisdom: Utilizing Forest Residues for the Production of Bioenergy and Biobased Products	*Humboldt State University*	*Han-Sup Han*
5:05	5:35	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 3: WEDNESDAY, MARCH 6, 2019

START TIME	*END TIME*	LIGNIN UTILIZATION		
		Presentation	Organization	Presenter
9:45 a.m.	10:00 a.m.	Lignin Utilization: Session Introduction	*BETO*	*Jay Fitzgerald*
10:00 a.m.	10:30 a.m.	Upgrading Lignin-containing Biorefinery Residues for Bioplastics	*Texas A & M*	*Joshua Yuan*
10:30 a.m.	11:00 a.m.	Biomass Electrochemical Reactor for Upgrading Biorefinery Waste to Industrial Chemicals and Hydrogen	*Ohio University*	*John Staser*
11:00 a.m.	11:30 a.m.	Lignin First Biorefinery Development	*NREL*	*Gregg Beckham*
11:30 a.m.	12:00 p.m.	Oxidative Valorization of Lignin	*PNNL*	*Xiao Zhang*
12:00 p.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Lignin Utilization	*NREL*	*Gregg Beckham*
1:30 p.m.	2:00 p.m.	Gas Phase Selective Partial Oxidation of Lignin for Co-products from Biomass Conversion	*NREL*	*Matt Yung*
2:00 p.m.	2:30 p.m.	Electrocatalytic Oxidation of Lignin Oligomers	*NREL*	*Josh Schaidle*
2:30 p.m.	3:00 p.m.	Biological Lignin Valorization - NREL	*NREL*	*Davinia Salvachua*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Biological Lignin Valorization - SNL	*SNL*	*Alberto Rodriguez*
3:45 p.m.	4:15 p.m.	Metabolic Engineering for Lignin Conversion	*ORNL*	*Adam Guss*
4:15 p.m.	4:45 p.m.	Biological Conversion of Thermochemical Aqueous Streams	*NREL*	*Gregg Beckham*
5:15 p.m.	5:45 p.m.	REVIEWER/LEAD REVIEWER DE-BRIEFING		

Day 4: THURSDAY, MARCH 7, 2019

START TIME	END TIME	AGILE BIOFOUNDRY		
		Presentation	Organization	Presenter
8:30 a.m.	8:40 a.m.	Agile BioFoundry: Session Introduction	*BETO*	*Jay Fitzgerald*
8:40 a.m.	9:30 a.m.	Agile BioFoundry Overview	*LBNL*	*Nathan Hillson*
9:30 a.m.	10:00 a.m.	BREAK		
10:00 a.m.	10:40 a.m.	Pseudomonas putida	*NREL*	*Gregg Beckham*
10:40 a.m.	11:20 a.m.	Rhodosporidium toruloides	*SNL*	*John Gladden*
11:20 a.m.	12:00 a.m.	Aspergillus pseudoterreus	*PNNL*	*Jon Magnuson*
12:00 p.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:50 p.m.	Design-Build-Test-Learn Infrastructure	*LBNL*	*Nathan Hillson*
1:50 p.m.	2:20 p.m.	Integrated Analysis	*NREL*	*Mary Biddy*
2:20 p.m.	2:50 p.m.	Host Onboarding	*ORNL*	*Adam Guss*
2:50 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Process Integration and Scale-Up	*LBNL*	*Deepti Tanjore*
3:45 p.m.	4:15 p.m.	Industry Outreach	*ANL*	*Phil Laible*
4:15 p.m.	4:45 p.m.	Directed Funding Opportunities and Partnerships	*LBNL*	*Blake Simmons*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 4: THURSDAY, MARCH 7, 2019

START TIME	*END TIME*	CARBON DIOXIDE UTILIZATION		
		Presentation	Organization	Presenter
8:30 a.m.	8:40 a.m.	Carbon Dioxide Utilization: Session Introduction	*BETO*	*Ian Rowe*
8:40 a.m.	9:10 a.m.	Feasibility Study of Utilizing Electricity to Produce Intermediates from CO_2	*NREL*	*Josh Schaidle*
9:10 a.m.	9:40 a.m.	BREAK		
9:40 a.m.	10:10 a.m.	CO_2 Utilization: Thermo- and Electro-catalytic routes to fuels and chemicals	*NREL*	*Jack Ferrell*
10:10 a.m.	10:30 a.m.	CCB DFAs: Catalyst Development for Selective Electrochemical Reduction of CO_2 to High-value Chemical Precursors with Opus-12	*NREL*	*Fred Baddour*
10:30 a.m.	11:00 a.m.	Hybrid Electro- and Thermo-Catalytic Upgrading of CO_2 to Fuels and C2+ Chemicals	*ORNL*	*Adam Rondinone*
11:30 a.m.	12:00 p.m.	CO_2 Valorization Via Rewiring Carbon Metabolic Network	*NREL*	*PinChing Maness*
12:00 p.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Improving Formate Upgrading by Cupriavidus Necator	*NREL*	*Christopher Johnson*
1:30 p.m.	2:00 p.m.	Enhancing Acetogen Formate Utilization to Value-Added Products	*NREL*	*Jonathan Lo*
2:00 p.m.	2:30 p.m.	Synthetic C1 Condensation Cycle for Formate-Mediated ElectroSynthesis	*NREL*	*Wei Xiong*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Integration of CO_2 Electrolysis with Microbial Syngas; Upgrading to Rewire the Carbon Economy	*NREL*	*Michael Resch*
3:45 p.m.	4:15 p.m.	Biomethanation to Upgrade Biogas to Pipeline Grade Methane	*NREL*	*Kevin Harrison*
4:15 p.m.	4:45 p.m.	Novel Cell-Free Enzymatic Systems for CO_2 Capture and Utilization: Bio-energy based Biologically Carbon Capture and Valorization (BeCC&V)	*NREL*	*Min Zhang*
4:45 p.m.	5:15 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 4: THURSDAY, MARCH 7, 2019

START TIME	END TIME	CO-OPTIMIZATION OF FUELS AND ENGINES		
		Presentation	Organization	Presenter
8:30 a.m.	8:40 a.m.	Co-Optimization of Fuels and Engines: Session Introduction	*BETO*	*Alicia Lindauer*
8:40 a.m.	9:10 a.m.	Co-Optima Overview	*Co-Optima Consortium*	*Daniel Gaspar*
9:10 a.m.	9:40 a.m.	Co-Optima Bioblendstock Structure Property and Predictions	*Co-Optima Consortium*	*Anthe George*
9:40 a.m.	10:00 a.m.	BREAK		
10:00 a.m.	10:30 a.m.	Co-Optima Bioblendstock Generation	*Co-Optima Consortium*	*Derek Vardon*
10:30 a.m.	11:00 a.m.	Co-Optima Bioblendstock Fuel Property Characterization	*Co-Optima Consortium*	*Gina Fioron*
11:00 a.m.	11:30 a.m.	Integrated Analysis of Efficiency-Enhancing Bio-Blendstocks	*Co-Optima Consortium*	*Jennifer Dunn*
11:30 a.m.	12:00 p.m.	BREAK		
12:00 p.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:30 p.m.	Combustion of Petroleum-Based Transportation Fuels and Their Blends with Biofuels: A New Approach for Developing Surrogates and Understanding the Effects of Blending	*Cornell University*	*C. Thomas Avedisian*
1:30 p.m.	2:00 p.m.	Multitude Characterization and Prediction of DOE Advanced Biofuels Properties	*The University of Central Florida Board of Trustees*	*Kareem Ahmed*
2:00 p.m.	2:30 p.m.	Rapid Construction of Validated Chemistry Models for Advanced Biofuels	*Massachusetts Institute of Technology*	*William Green*
2:30 p.m.	3:00 p.m.	MISR: Miniature Ignition Screening Rapid Compression Machine for Kinetic Measurements of Novel Fuels	*University of Illinois at Chicago*	*Patrick Lynch*
3:00 p.m.	3:30 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 4: THURSDAY, MARCH 7, 2019

START TIME	*END TIME*	ADVANCED DEVELOPMENT AND OPTIMIZATION: ANALYSIS AND MODELING		
		Presentation	Organization	Presenter
8:30 a.m.	8:40 a.m.	Advanced Development and Optimization: Analysis and Modeling Session Introduction	*BETO*	*Siva Sivasubramanian*
8:40 a.m.	9:10 a.m.	Codes and Standards in Integrated Biorefineries	*ORNL*	*Erin Webb*
9:10 a.m.	9:40 a.m.	Feedstock to Function: Improving Biobased Product and Fuel Development Through Adaptive Technoeconomic and Performance Modeling	*LBNL*	*Vi Rapp*
9:40 a.m.	10:00 a.m.	BREAK		
10:00 a.m.	10:30 a.m.	Integrated Computational Tools to Optimize and De-Risk Feedstock Handling & High-Pressure Reactor Feedings Systems: Application to Red Rock Biofuels' Biorefinery	*NREL*	*Jonathan J. Stickel*
10:30 a.m.	11:00 a.m.	Integrated Process Optimization for Biochemical Conversion	*Clemson University*	*Sandra Eksioglu*
11:00 a.m.	11:30 a.m.	Analytical Modeling of Biomass Transport and Feeding Systems	*Purdue University*	*Michael Ladisch*
11:30 a.m.	12:00 p.m.	Improved Biomass Feedstock Materials Handling and Feeding Engineering Data Sets, Design Methods, and Modeling/Simulation Tools	*Forest Concepts, LLC*	*James Dooley*
12:00 p.m.	1:00 p.m.	BREAK		
1:00 p.m.	1:30 p.m.	Sustainable Production of JP-10	*LANL*	*Andrew Sutton*
1:30 p.m.	2:00 p.m.	Analysis for JET High Performance Fuels	*SNL*	*Anthe George*
2:00 p.m.	2:30 p.m.	GARDN Collaboration U.S. - Canada Aviation Fuels at PNNL	*PNNL*	*Corinne Drennan*
2:30 p.m.	3:00 p.m.	Evaluation of Bio-oils for Use in Marine Engines	*ORNL*	*Michael Kass*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

Day 4: THURSDAY, MARCH 7, 2019

START TIME	END TIME	FEEDSTOCK-CONVERSION INTERFACE CONSORTIUM		
		Presentation	Organization	Presenter
8:15 a.m.	8:30 a.m.	Feedstock-Conversion Interface Consortium: Session Introduction	*BETO*	*Beau Hoffman*
8:30 a.m.	8:50 a.m.	FCIC Overview Presentation – 2017 and 2018	*NREL*	*Michael Resch*
8:50 a.m.	9:30 a.m.	Feedstock Variability and Specification Development	*INL*	*Allison Ray*
9:30 a.m.	10:00 a.m.	BREAK		
10:00 a.m.	10:40 a.m.	Process Integration	*NREL*	*Ed Wolfrum*
10:40 a.m.	11:20 a.m.	Feedstock Physical Performance Modeling	*INL*	*Tyler Westover*
11:20 a.m.	12:00 p.m.	Process Controls and Optimization	*INL*	*Quang Nyugen*
12:00 p.m.	1:00 p.m.	LUNCH		
1:00 p.m.	1:40 p.m.	System-wide Throughput Analysis	*INL*	*David Thompson*
1:40 p.m.	2:20 p.m.	Industry Engagement and Project Management	*NREL*	*Michael Resch*
2:20 p.m.	3:00 p.m.	FCIC Future Plans (FY19 and Beyond)	*NREL*	*Zia Abdullah*
3:00 p.m.	3:15 p.m.	BREAK		
3:15 p.m.	3:45 p.m.	Pretreatment and Process Hydrolysis	*NREL*	*Mel Tucker*
3:45 p.m.	4:30 p.m.	REVIEWER/LEAD REVIEWER DEBRIEFING		

POSTER SESSIONS INFORMATION

Day 1 – MARCH 4, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
	Small Business Innovation Research (SBIR)	
1	Development of a Breeding System in Chlamydomonas Moewusii for Improved Production Strains	*Global Algae Innovations, Inc.*
2	Development of Breeding Strategies for Nitzschia sp.	*Global Algae Innovations, Inc.*
3	Zobi Based Processes for Ultra-low Energy Algal Harvesting and Dewatering	*Global Algae Innovations, Inc.*
4	Development of a High Throughput Algal Dewatering System Using Magnetic Particles	*Manta Biofuel, LLC*
5	Domestication of the Microalga Scenedesmus Obliquus for Biomass Feedstock Production	*MicroBio Engineering*
6	Algal Bioflocculation for Solid-Liquid Separation	*MicroBio Engineering*
7	Concentration and Dewatering of Micro-Algae Cultures with High Throughput Ceramic Membranes	*Molecule Works Inc.*
8	Advanced, Low-Cost, System for Algae Dewatering	*Techverse, Inc.*
9	Rational Enhancement of Enzyme Performance via Polymer Based Protein Engineering for Biodiesel Production	*BioHybrid Solutions LLC*
10	An Integrated Process for Butanol Production from Cellulosic Biomass and CO_2 Using Engineered Clostridia in a Linear Immobilized Bioreactor	*Bio-Missions LLC*
11	Two-phase Production of an Organic Acid with CO_2 Sequestration	*Lygos*
12	Utilization of Waste CO_2 to Make Renewable Chemicals and Fuels	*Opus 12 Incorporated*
13	Scaling Bioelectrochemical Biomass Conversion Technologies	*Faraday Technology, Inc.*
14	Renewables-Driven Production of Organic Acids from Industrial CO_2 Waste Streams	*Sustainable Innovations, LLC*
15	Low-Cost Alloy Coatings by Pulsed Electrodeposition for Combustors	*Faraday Technology, Inc .*
16	Fractionation and Dehydration of Existing Feedstock for Biomass and Biopower Production	*Shockkwave, LLC*
17	Low-Energy Rotary Shear for Sub-millimeter Particle Production	*Forest Concepts, LLC*
18	Selective Catalysis for One-Step Lignocellulose Delignification and Lignin Valorization to High Value Methoxyphenols	*Spero Energy, Inc.*
19	Supramolecular Nanocellulose Drug Excipients	*InnoSense LLC*
20	Conversion of Waste Water Treatment Plant Fats Oils and Greases "Brown Grease" Into Bio Diesel Using Supercitical Fluids and Robust Catalyst Processes	*CF Technologies, Inc.*
21	Manufacture of 2,5-Furandicarboxylic Acid from Furfural Produced from a Wet Waste Stream	*KSE, Inc*

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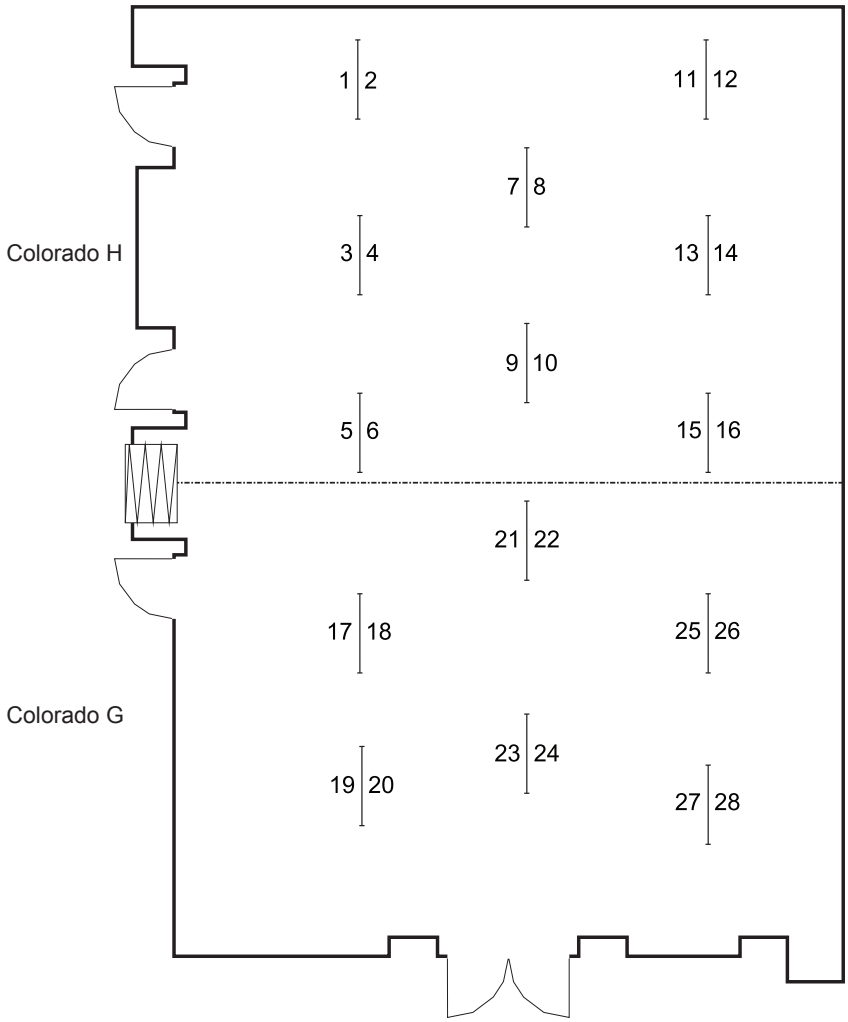
Day 1 – MARCH 4, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
22	Hydrothermal Liquefaction of Food Waste and Remediation of Aqueous Byproducts	*Mainstream Engineering Corporation*
23	An Optimized Biocatalyst for Efficient Conversion of CH_4 and CO_2 into Bioproducts	*MOgene Green Chemicals*
24	Conversion of Biogas to Liquid Fuels on Superior Catalysts	*NexTech Materials, Ltd.*
25	Highly Efficient Modular Anaerobic Membrane Bioreactor (anmbr) for Biofuel Production from Wet Organic Waste Streams	*TDA Research, Inc.*
26	Novel Method for Conversion of Biomass to Fuel	*TDA Research, Inc.*
27	Production of High Value Products from Gaseous Waste Streams	*Visolis, Inc*
28	Production of C5 Hydrocarbons from Waste Biomass	*Visolis, Inc*

Day 1 – MAP (COLORADO G-H)



Day 2 – MARCH 5, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
	Agile BioFoundry Industry Partnerships	
1	Implementing a Design, Build, Test, Learn Engineering Cycle for Production of an Organic Acid Product	*P. Kudriavzevii Lygos / SNL / LBNL / PNNL*
2	Production of High-value Chemicals from Renewable Feedstocks	*Visolis / NREL / ORNL*
3	Progress Towards a New Model Chemolithoautotrophic Host	*Kiverdi / LBNL / NREL / ORNL*
4	Development of High Throughput Proteomics and Metabolomics Assays	*Aglient / PNNL / LBNL / SNL*
5	Agile Genetics for Biomanufacturing	*Neidle Lab / LANL / NREL*
6	Integration of Agile Biofoundry Informatic Modules with Teselagen's BIOCAD/CAM Platform and Evaluation of Emerging Teselagen Functionality Support of ABF Workflows	*TeslaGen / LBNL / SNL / PNNL*
7	Data Integration and Deep Learning for Continuous Gas Fermentation Optimization	*LanzaTech / ANL / NREL*
	Efficient Carbon Utilization in Algal Systems Funding Opportunity	
8	Air Carbon for Algae Production - AirCAP	*MicroBio Engineering Inc.*
9	Integrating an Industrial Source and Commercial Algae Farm with Innovative CO_2 Transfer Membrane and Improved Strain Technologies	*Colorado State University*
10	Carbon Utilization Efficiency in Marine Algae Biofuel Production Systems Through Loss Minimization and Carbonate Chemistry Modification	*Duke University*
11	Algae Cultivation from Flue Gas with High CO_2 Utilization Efficiency	*Global Algae Innovations*
12	Multi-pronged Approach of Improved Biological and Physicochemical Systems to Improving Carbon Utilization by Cyanobacterial Cultures	*Arizona State University*
13	Membrane Carbonation for 100% Efficient Delivery of Industrial CO_2 Gases	*Arizona State University*
14	Direct Air Capture of CO_2 and Delivery to Photobioreactors for Algal Biofuel Production	*Georgia Institute of Technology*
	Affordable and Sustainable Energy Crops (ASEC) Funding Opportunity	
15	Next-Generation Feedstocks for the Emerging Bioeconomy	*University of Illinois at Urbana-Champaign*
16	Next Generation Miscanthus: Hybrid Performance Evaluation and Enhanced, Sustainable Feedstock Production and Supply in the Southeast U.S. for Biofuels and Bioproducts	*North Carolina State University*
17	Sustainable Herbaceous Energy Crop Production in the Southeast United States	*Texas A&M AgriLife Research*
	BioEnergy Engineering for Products Synthesis (BEEPS) Funding Opportunity	
18	Accelerating Engineered Microbe Optimization Through Machine Learning and Multiomics Datasets	*Lygos, Inc.*
19	Advanced Algal Biofoundries for the Production of Polyurethane Precursors	*University of California, San Diego*

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Day 2 – MARCH 5, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
20	Biodiesel and Higher Value Products from Stillage Fiber	*Xylome Corporation*
21	Catalytic Upgrading of Carbohydrates in Waste Streams to Hydrocarbons	*North Carolina State University*
22	Cellulose-Chitin Composites for Performance Advantaged Barrier Packaging Bioproducts	*Georgia Institute of Technology*
23	Design and Development of Bio-Advantaged Vitrimers as Closed-Loop Bioproducts	*University of California, Berkeley*
24	Development of a Scalable, Robust Electrocatalytic Technology for Conversion of CO_2 to Formic Acid via Microstructured Materials	*Montana State University*
25	Development of Bacillus as an Industrial Host for the Microbial Production of Biopolymers; A Carbon Conserving Biosynthetic Pathway for the Microbial Production of Fatty Acids from Glycerol Rich Waste Streams (SBIR). Carbon Conserving Microbial Production of Adipic Acid from Sugar; and Crude Glycerol Feedstocks (SBIR)	*Zymochem Inc.*
26	Identifying Performance Advantaged Biobased Chemicals Utilizing Bioprivileged Molecules	*Iowa State University*
27	Integrated Biorefinery for Chemicals and Fuels Production from Waste Biomass	*Visolis*
28	Intensified Biogas Conversion to Value-Added Fuels and Chemicals	*University of South Florida*
29	Lignin Fractionation and Valorization: Focusing on both Value and Quality	*Clemson University*
30	Production of Bioproducts from Electrochemically-Generated C1 Intermediates	*LanzaTech, Inc.*
31	SPERLU: Selective Process for Efficient Removal of Lignin and Upgrading	*Spero Energy, Inc.*
	Biopower Lab Call	
32	Enabling Complex Biomass Feedstock for Biopower Combustion and Autothermal Pyrolysis	*ORNL*
33	Torrefaction of Sorted MSW Pellets for Uniform Biopower Feedstock	*INL*
	Co-Optimization of Fuels and Engines Funding Opportunity	
34	Bioproduction and Evaluation of Renewable Butyl Acetate as a Desirable Bioblendstock for Diesel Fuel	*Auburn University*
35	Mono-Ether and Alcohol Bioblendstocks to Reduce the Fuel Penalty of Mixing Controlled Compression Ignition Engine Aftertreatment	*University of Wisconsin-Madison*
36	Naphthenic Biofuel-Diesel Blend for Optimizing Mixing Controlled Compression Ignition Combustion	*SUNY University at Stony Brook*
37	Renewable Fuel Additives from Woody Biomass	*University of Massachusetts Lowell*

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Day 2 – MARCH 5, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
38	Tailored Bioblendstocks with Low Environmental Impact to Optimize MCCI Engines	*University of Michigan*
	Advanced Development and Optimization	
39	Analysis for Ensyn Commercial Refinery Co-Processing	*NREL*
	Feedstock Conversion Interface Consortium (FCIC) Industry Partnerships	
40	Investigating and Addressing the Wear Issue of the Rotary Shear Biomass Comminution System	*Forest Concepts / ORNL*
41	Moisture Management and Optimization in Municipal Solid Waste Feedstock through Mechanical Processing	*Fulcrum Bioenergy, Inc./ INL*
42	"Smart" Transfer Chutes with In-Line Acoustic Sensors for Bulk-Solids Handling Solutions	*Jenike & Johanson / LANL*
43	Achieving High Operating Reliability for Continuous Feeding of Biomass into a High-Pressure Reactor	*Red Rock Biofuels / INL*
44	Real time, Integrated Dynamic Control Optimization to Improve the Operational Reliability of a Gasifier	*Sierra Energy / INL*
45	Biomass Attribute-Based Reactor Feeder Design for Heterogeneous Agricultural Wastes	*The Wonderful Company / NREL*
	Process Development for Advanced Biofuels and Biopower (PDABB) Funding Opportunity	
46	A Catalytic Process to Convert Municipal Solid Waste Components to Energy	*Worcester Polytechnic Institute*
47	Agricultural and Woody Biomass to Diesel Fuel with Bio-oil Intermediate	*West Biofuels Development, LLC*
48	Bio-crude Production and Upgrading to Renewable Diesel	*Research Triangle Institute*
49	Cool GTL® for the Production of Jet Fuel from Biogas	*Gas Technology Institute*
50	High-efficiency Process for RNG Production from Biogas using MOF-based Solid Adsorbents	*Mosaic Materials*
51	Hybrid HEFA-HDCJ Process for the Production of Jet Fuel Blendstocks	*Washington State University*
52	Maximizing Bio-Renewable Energy from Wet Wastes (M-BREWW)	*University of Illinois at Urbana-Champaign*
53	Novel Method for Biomass Conversion to Renewable Jet Fuel Blend	*Technology Holding LLC*
54	Ultra-low Sulfur Winterized Diesel	*LanzaTech, Inc.*
	Bioprocessing Separations Consortium Industry Partnerships	
55	At-Scale Demonstration of In-Situ Product Recovery with Nano-Adsorbents	*DMC Biotechnologies / ANL*

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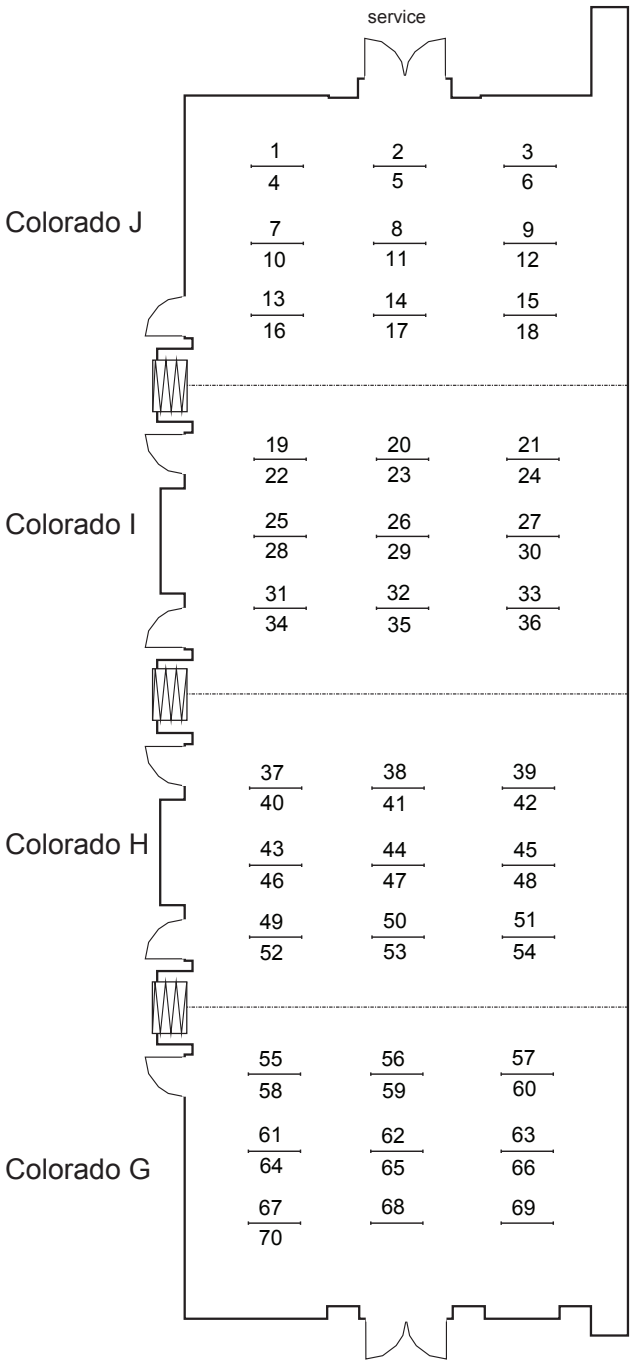
Day 2 – MARCH 5, 2019 4:30PM – 6:30 PM

POSTER	TITLE	AFFILIATION
56	Biomass Separation, Biopolymer Concentration and Salt Removal from a Marine Cyanobacterial Culture	*HelioBioSys / LBNL*
57	Water Removal Strategy Development	*Kalion, Inc. / ORNL*
58	Advancing Downstream Processing of Biopolymers from Methane	*Mango Materials / LBNL*
59	Two-Step Process to Pure Mevalonic Acid	*Visolis / ANL*
	Technology Commercialization Fund (TCF)	
60	Advanced Cellobiohydrolases	*NREL*
61	Application of Resin-Wafer Electrodeionization Technology in Biorefineries	*ANL*
62	Fully Renewable Polyurethane Resins Produced from Algae and other Feedstocks	*NREL*
63	Lignin-Derived Ionic Liquids: Synthesis and Application in Biopolymer Processing	*LBNL*
64	Reactive Distillation: Alcohol-to-Jet Application	*PNNL*
65	Scaled Production of High Cctane Biofuel from Biomass-Deriveddimethyl Ether	*NREL*
66	SIS Biofuel Absorbents	*ANL*
67	Sustainable Graphite for Lithium Ion Batteries	*NREL*
68	Transfer & Validation of Copyrighted NREL Spectroscopy IP for Rapid Biomass Composition to Next-Generation Ultra Low-Cost Near-Infrared (NIR) Spectrometers	*NREL*
	Small Business Innovation Research (SBIR)	
69	Engineering Methane and Carbon Dioxide Pathways to Turn Renewable Biogas into Higher-Value Chemicals	*Industrial Microbes, Inc.*

Day 2 – MAP (COLORADO G-J)



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Suzanne Lantz	*DuPont*
Kelsey McNeely	*ExxonMobil*
John Sheehan	*Colorado State University*
Stephen Costa	*U.S. Department of Transportation - Volpe*

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Brandon Emme	*ICM, Inc.*
Dana Mitchell	*USDA Forest Service - Southern Research Station*
Ray Miller	*Michigan State University*
Lynn Wright	*WrightLink Consulting*

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Louis Brown	*Synthetic Genomics*
Jose Olivares	*BioLogic Energy Partners*
Becky Ryan	*Indigo Agriculture*
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Farzaneh Rezaei	*Pivot Bio*
Chris Rao	*University of Illinois at Urbana–Champaign*
Ben Gordon	*Broad Foundry*
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Chris Clark	*Environmental Protection Agency*
Harry Baumes	*Retired, U.S. Department of Agriculture*

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Mike Fatigati	*Taylor Energy*
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Mark Warner	*Warner Advisors LLC*
Andrea Slayton	*Slayton Consultants*
Lucca Zullo**	*VerdeNero, LLC.*

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**Wednesday, March 6th only

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Cory Phillips	*Phillips 66*
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Bhupendra Khandelwal	*University of Sheffield*
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FEEDSTOCK-CONVERSION INTERFACE CONSORTIUM REVIEW PANEL	
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Matthew Tobin	*Matthew B. Tobin Consulting*
Jeff Scheibel	*J. J. Scheibel Consulting LLC*
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Peter Keeling	*Purdue University*

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Arthur Umble	*Stantec*
Eric Miller	*U.S. Department of Energy - Fuel Cell Technologies Office*
Katie Randolph	*U.S. Department of Energy - Fuel Cell Technologies Office*
Pablo Rabinowicz	*U.S. Department of Energy - Office of Science*
Kara Podkaminer	*U.S. Department of Energy - Strategic Programs*

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Owen Goldstrom	The Building People
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Camryn Sorg	The Building People
Rebecca Szymkowicz	Redhorse Corporation
Colleen Tomaino	BCS LLC
Carlos Villacis	The Building People
Ben Walsh	The Building People
Luke Williams	Management and Operating Contractor, Idaho National Laboratory
Art Wiselogel	Allegheny Science & Technology

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U.S. DEPARTMENT OF ENERGY

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