2023 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

Monday, April 3 – Friday, April 7, 2023
Grand Hyatt Denver, 1750 Welton Street, Denver, CO 80202

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2023 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

OPENING PLENARY

Day 1 MONDAY, APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:00 AM	9:00 AM	*Registration, Breakfast*		
9:00 AM	9:15 AM	Peer Review Introduction	*BETO*	*Josh Messner - Peer Review Lead*
9:15 AM	9:35 AM	BETO Overview	*BETO*	*Valerie Reed - Director*
9:35 AM	9:50 AM	Thoughts from BETO's Chief Engineer	*BETO*	*Reyhaneh Shenassa - Chief Engineer*
9:50 AM	10:10 AM	Renewable Carbon Resources Overview	*BETO*	*Nichole Fitzgerald - Program Manager*
10:10 AM	10:30 AM	Conversion Technologies Overview	*BETO*	*Kevin Craig - Program Manager*
10:30 AM	10:50 AM	Systems Development and Integration Overview	*BETO*	*Jim Spaeth - Program Manager*
10:50 AM	11:10 AM	Data Modeling and Analysis Overview	*BETO*	*Jay Fitzgerald - Chief Scientist*
11:10 AM	11:20 AM	Diversity Equity and Inclusion (DEI) Minute	*NREL*	*Anne Starace*
11:20 AM	11:35 AM	EERE Joint Office Priorities	*BETO*	*Gayle Bentley - Technology Manager*
11:35 AM	1:00 PM	*Adjourn for Lunch and move to Technology Area Breakouts*		

MID-WEEK PLENARY

Day 4 THURSDAY, APRIL 6, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:00 AM	8:30 AM	*Registration, Breakfast*	*All*	
8:30 AM	8:45 AM	Peer Review Introduction	*BETO*	*Josh Messner - Peer Review Lead*
8:45 AM	9:05 AM	BETO Overview	*BETO*	*Valerie Reed - Director*
9:05 AM	9:25 AM	Conversion Technologies Overview	*BETO*	*Kevin Craig - Program Manager*
9:25 AM	9:35 AM	Diversity Equity and Inclusion (DEI) Minute	*PNNL*	*Mariefel Olarte*
9:35 AM	9:50 AM	EERE Joint Office Priorities	*BETO*	*Gayle Bentley - Technology Manager*
9:50 AM	9:50 AM	*Adjourn for Lunch and move to Technology Area Breakouts*	*All*	

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HIGH LEVEL AGENDA

	Agenda Item
DAY 1: Monday, April 3	• *Welcome and Plenary Session* • Advanced Algal Systems – Cultivation and Strain Development • Advanced Algal Systems – Integration • Agile BioFoundry • Data, Modeling and Analysis • Feedstock Technologies • Plastics Deconstruction and Redesign • Systems Development & Integration – Emerging and Supporting Technologies • Systems Development & Integration – Scale-Up Portfolio

	Agenda Item
DAY 2: Tuesday, April 4	• Advanced Algal Systems – Cultivation and Strain Development • Advanced Algal Systems – Integration • Agile BioFoundry • Data, Modeling and Analysis • Feedstock Technologies • Plastics Deconstruction and Redesign • Systems Development & Integration – Emerging and Supporting Technologies • Systems Development & Integration – Scale-Up Portfolio

	Agenda Item
DAY 3: Wednesday, April 5	• Agile BioFoundry • Data, Modeling and Analysis • Feedstock Technologies • Plastics Deconstruction and Redesign • Systems Development & Integration – Emerging and Supporting Technologies • Systems Development & Integration – Scale-Up Portfolio

	Agenda Item
DAY 4: Thursday, April 6	• *Mid-week Kick-off and Plenary Session* • Biochemical Conversion and Lignin Utilization • Carbon Dioxide Utilization • Catalytic Upgrading • Feedstock-Conversion Interface Consortium • Organic Waste Conversion • Performance-Advantaged Bioproducts and Bioprocessing Separations

	Agenda Item
DAY 5: Friday, April 7	• Biochemical Conversion and Lignin Utilization • Carbon Dioxide Utilization • Catalytic Upgrading • Organic Waste Conversion • Performance-Advantaged Bioproducts and Bioprocessing Separations

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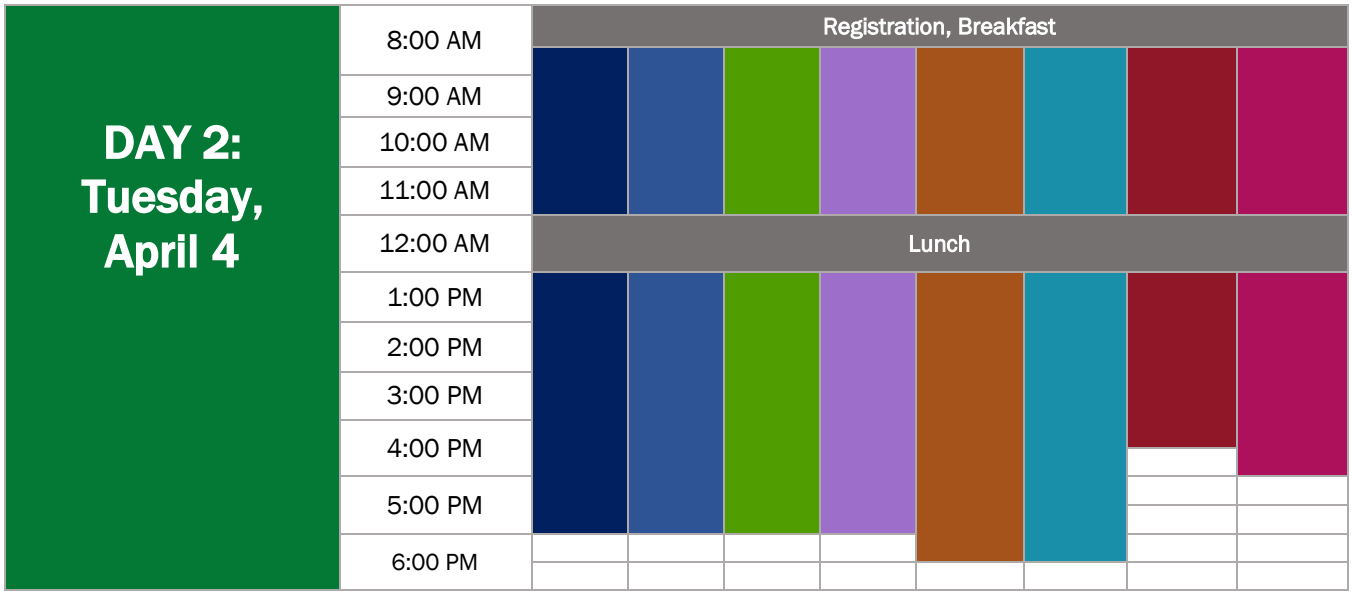
AGENDA AT A GLANCE

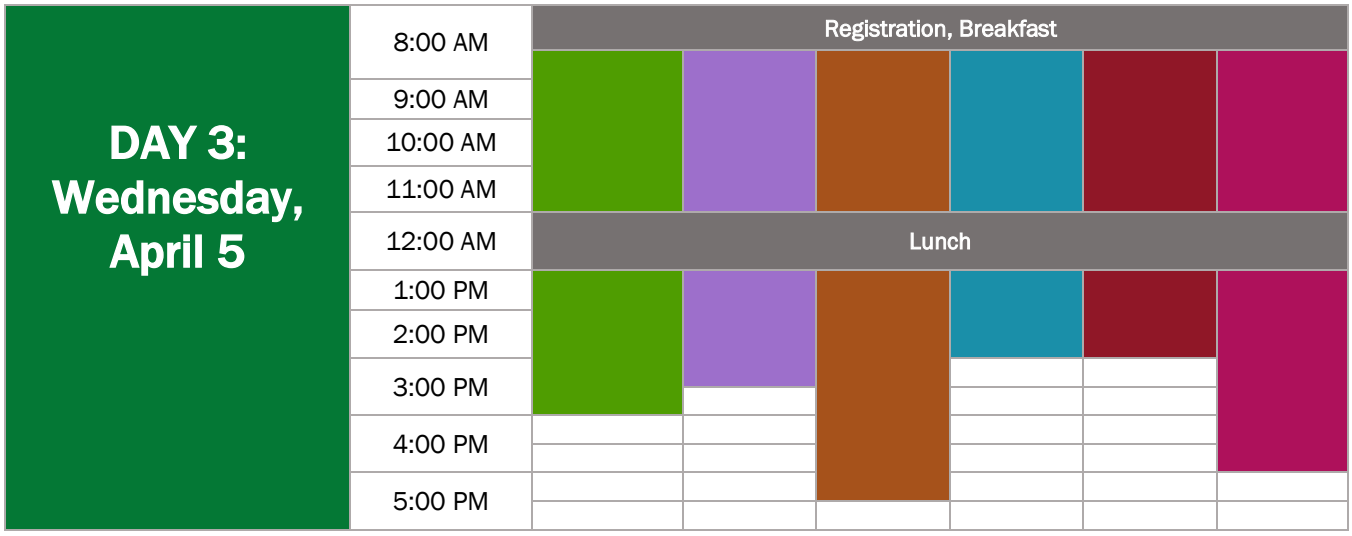
DAY 1: Monday, April 3

8:00 AM	Registration, Breakfast
9:00 AM	Opening Plenary
10:00 AM	
11:00 AM	Lunch
12:00 AM	
1:00 PM	
2:00 PM	
3:00 PM	
4:00 PM	
5:00 PM	
6:00 PM	

- OPENING PLENARY
- ADVANCED ALGAL SYSTEMS – CULTIVATION AND STRAIN DEVELOPMENT
- ADVANCED ALGAL SYSTEMS – INTEGRATION
- AGILE BIOFOUNDRY
- DATA, MODELING AND ANALYSIS
- FEEDSTOCK TECHNOLOGIES
- PLASTICS DECONSTRUCTION AND REDESIGN
- SYSTEMS DEVELOPMENT & INTEGRATION – EMERGING AND SUPPORTING TECHNOLOGIES
- SYSTEMS DEVELOPMENT & INTEGRATION – SCALE-UP PORTFOLIO

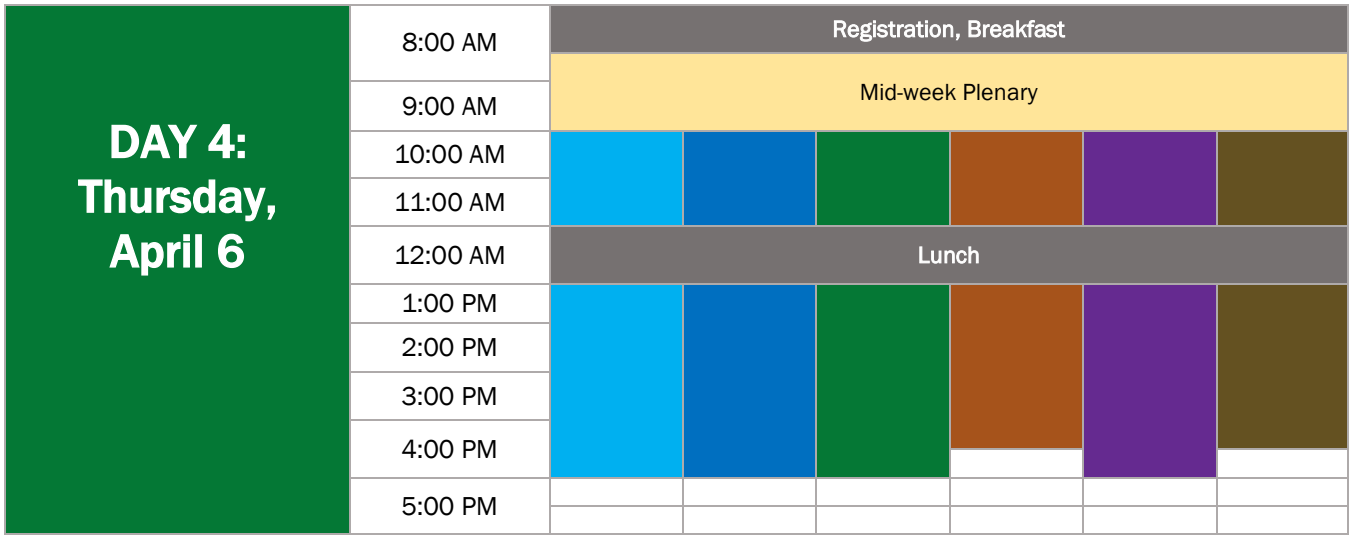
AGENDA AT A GLANCE

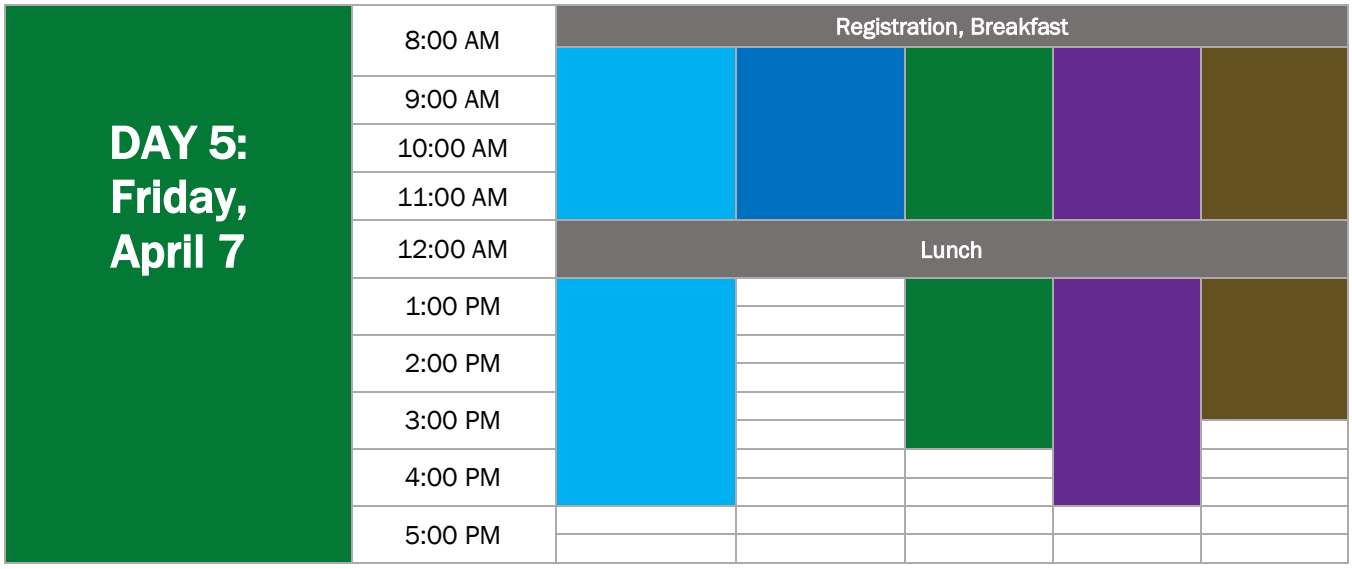




- REGISTRATION
- ADVANCED ALGAL SYSTEMS – CULTIVATION AND STRAIN DEVELOPMENT
- ADVANCED ALGAL SYSTEMS – INTEGRATION
- AGILE BIOFOUNDRY
- DATA, MODELING AND ANALYSIS
- FEEDSTOCK TECHNOLOGIES
- PLASTICS DECONSTRUCTION AND REDESIGN
- SYSTEMS DEVELOPMENT & INTEGRATION – EMERGING AND SUPPORTING TECHNOLOGIES
- SYSTEMS DEVELOPMENT & INTEGRATION – SCALE-UP PORTFOLIO

AGENDA AT A GLANCE





- MID-WEEK PLENARY
- BIOCHEMICAL CONVERSION AND LIGNIN UTILIZATION
- CARBON DIOXIDE UTILIZATION
- CATALYTIC UPGRADING
- FEEDSTOCK-CONVERSION INTERFACE CONSORTIUM
- ORGANIC WASTE CONVERSION
- PERFORMANCE-ADVANTAGED BIOPRODUCTS AND BIOPROCESSING SEPARATIONS

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DETAILED CONFERENCE AGENDA

ADVANCED ALGAL SYSTEMS – CULTIVATION AND STRAIN DEVELOPMENT

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:30 PM	2:00 PM	Technology Area Introduction	*BETO*	
2:00 PM	2:30 PM	Algae Biotechnology Partnership	*NREL, LANL, SNL*	*Michael Guarnieri*
2:30 PM	3:00 PM	Carbon Utilization Efficiency in Marine Algae Biofuel Production Systems Through Loss Minimization and Carbonate Chemistry Modification EE0008518	*Duke University*	*Zackary Johnson*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Process Optimization and Real-Time Control of Synergistic Microalgae Cultivation and Wastewater Treatment EE0009270	*University of Illinois at Urbana-Champaign*	*Jeremy Guest*
3:50 PM	4:20 PM	Synergistic Municipal Wastewater Treatment Using a Rotating Algae Biofilm Reactor EE0009271	*Utah State University*	*Ronald Sims*
4:20 PM	4:50 PM	Metabolic Carbon Fluxomics during Compositional Shifts	*NREL*	*Lieve Laurens*
4:50 PM	5:00 PM	*Adjourn*	*All*	
5:00 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

ADVANCED ALGAL SYSTEMS CULTIVATION AND STRAIN DEVELOPMENT				
DAY 2 – TUESDAY APRIL 4, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Algae DISCOVR	*PNNL, LANL, SNL, NREL, ASU*	*Michael Huesemann*
9:15 AM	9:45 AM	Algae DISCOVR	*PNNL, LANL, SNL, NREL, ASU*	*Michael Huesemann*
9:45 AM	10:00 AM	Algae DISCOVR	*PNNL, LANL, SNL, NREL, ASU*	*Michael Huesemann*
10:00 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Broad Spectrum Antifungal Pond Protection	*SNL*	*Todd Lane*
11:00 AM	11:30 AM	Ecological monitoring technologies to enhance large-scale microalgae cultivation, stability, and productivity EE0009673	*Scripps Institution of Oceanography at the University of California, San Diego*	*Lisa Zeigler*
11:30 AM	12:00 PM	Hold for any conflicts; longer break if not needed		
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Advancing Algal Productivity through Innovation in Cultivation Operation and Strain Traits (ADAPT-COST) EE0009672	*Colorado State University*	*Ken Reardon*
1:30 PM	2:00 PM	Enhanced production of algae lipids and carbohydrates for fuel and polyurethane precursors EE0009671	*University of California: San Diego*	*Stephen Mayfield*
2:00 PM	2:30 PM	Direct Air Capture Integration with Algae Carbon Biocatalysis EE0009674	*Arizona State University*	*John McGowen*
2:30 PM	3:00 PM	Enhanced algae productivity in CO2 direct air capture cultivation EE0009675	*Global Algae Innovations*	*Dave Hazlebeck*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Microalgae Analysis	*PNNL*	*Andre Coleman*
3:50 PM	4:20 PM	Life-Cycle Analysis	*ANL*	*Troy Hawkins*

4:20 PM	4:30 PM	*Adjourn*	*All*	
4:30 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

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ADVANCED ALGAL SYSTEMS – INTEGRATION

DAY 1 – Monday APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction	*BETO*	
1:30 PM	2:00 PM	Algae Technology Educational Consortium	*NREL*	*Cindy Gerk*
2:00 PM	2:30 PM	Algal Productivity Enhancements by Rapid Screening and Selection of Improved Biomass and Lipid Producing Phototrophs (APEX) EE0008904	*Colorado School of Mines*	*Matthew Posewitz*
2:30 PM	3:00 PM	Optimizing Selection Pressures and Pest Management to Maximize Algal Biomass Yield EE0008902	*New Mexico Consortium*	*Alina Corcoran*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Improving the Productivity and Performance of Large-Scale Integrated Algal Systems for Wastewater Treatment and Biofuel Production EE0008905	*University of Illinois at Urbana-Champaign*	*Lance Schideman*
3:50 PM	4:20 PM	Decision-Model Supported Algal Cultivation Process Enhancement EE0008906	*Arizona State University*	*John McGowen*
4:20 PM	4:50 PM	Medium Optimization with Recycled Elements (MORE) for Better Biomass	*LANL*	*Claire Sanders*
4:50 PM	5:00 PM	*Adjourn*	*All*	

5:00 PM	5:30 PM	*Closed Door Review Session*	*Reviewers*	
ADVANCED ALGAL SYSTEMS INTEGRATION				
DAY 2 – TUESDAY APRIL 4, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:40 AM	Technology Area Daily Intro	*BETO*	
8:40 AM	9:10 AM	Innovations in Algae Cultivations EE0008903	*Global Algae Innovations*	*Dave Hazlebeck*
9:10 AM	9:40 AM	Production of algae biofuel with CO2 direct air capture EE0009272	*Global Algae Innovations*	*Dave Hazlebeck*
9:40 AM	10:10 AM	ASU's DAC polymer-enhanced cyanobacterial bioproductivity (AUDACity) EE0009274	*Arizona State University*	*Willem Vermaas*
10:10 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Microalgae Commodities Production with a Direct Air Capture Process EE0009276	*MicroBio Engineering, Inc.*	*Braden Crowe*
11:00 AM	11:30 AM	ACCESS CARBON - Alkaline Carbon Capture and Expression-Streamlined Spirulina Cultivated in Air for Reliable Bioproducts, Oil, and Nutrition EE0009277	*Lumen Bioscience, Incorporated*	*Mark Heinnickel*
11:30 AM	12:00 PM	Biomolecular Films for Direct Air Capture of CO2 EE0009275	*University of California, San Diego*	*Michael Guarnieri*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	High pH/High Alkalinity Cultivation for Direct Atmospheric Air Capture and Algae Bioproducts EE0009273	*Montana State University*	*Robin Gerlach*
1:30 PM	2:00 PM	Development of high value bioproducts and enhancement of direct-air capture efficiency with a marine algae biofuel production system EE0009278	*Duke University*	*Zackary Johnson*
2:00 PM	2:30 PM	Combined Algal Processing for the Synthesis of Liquid Oleofuels and Products (CAPSLOC)	*NREL*	*Tao Dong*
2:30 PM	3:00 PM	HTL Development	*PNNL*	*Peter Valdez*
3:00 PM	3:20 PM	*Break*		
3:20 PM	3:50 PM	Algal biofuels techno-economic analysis	*NREL*	*Ryan Davis*

3:50 PM	4:20 PM	HTL Model Development	*PNNL*	*Peter Valdez*
4:20 PM	4:30 PM	*Adjourn*	*All*	
4:30 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

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AGILE BIOFOUNDRY CONSORTIUM

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction	*BETO*	*Gayle Bentley*
1:30 PM	2:00 PM	ABF Introduction and Overview	*ABF*	*Nathan Hillson*
2:00 PM	2:30 PM	ABF Past Accomplishments - DBTL Infrastructure, Demonstration Projects, and Beachheads	*ABF*	*Nathan Hillson, Gregg Beckham, Di Liu, Jon Magnuson*
2:30 PM	3:00 PM	ABF Past Accomplishments - Industry Engagement, Outreach, Management	*ABF*	*Christopher Johnson, Phil Laible, Emily Nelson*
3:00 PM	3:20 PM	*Break*		
3:20 PM	3:35 PM	ABF Past Accomplishments - TEA/LCA	*ABF*	*Bruno Klein, Thathiana Benavides*
3:35 PM	3:50 PM	ABF Past Accomplishments - Host Onboarding and Development	*ABF*	*Adam Guss, Taraka Dale*
3:50 PM	4:05 PM	ABF Past Accomplishments - Process Integration, Scale Up	*ABF*	*Deepti Tanjore, Davinia Salvachua*
4:05 PM	4:35 PM	ABF Past Accomplishments - Q&A, Open Discussion, and Feedback	*ABF*	*Nathan Hillson*
4:35 PM	5:15 PM	*Closed Door Comment Review Session*	*Reviewers*	

AGILE BIOFOUNDRY CONSORTIUM				
DAY 2 – TUESDAY APRIL 4, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	BETO	Gayle Bentley
8:45 AM	9:15 AM	ABF - Lessons Learned and Introduction to Future Plans	ABF	Nathan Hillson
9:15 AM	9:45 AM	ABF Future Strategy - Strategic Plan	ABF	Nathan Hillson
9:45 AM	10:15 AM	ABF Future Strategy - Goals, Milestones, and Deliverables	ABF	Nathan Hillson, Gregg Beckham, John Gladden, Jon Magnuson
10:15 AM	10:30 AM	*Break*		
10:30 AM	11:00 AM	ABF Future Strategy - Implementation Plans	ABF	Nathan Hillson, Gregg Beckham, John Gladden, Jon Magnuson
11:00 AM	11:30 AM	ABF Future Strategy - Q&A, Open Discussion, and Feedback	ABF	All ABF members present
11:30 AM	12:00 PM	ABF Future Strategy - Q&A, Open Discussion, and Feedback	ABF	All ABF members present
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Development of Bacillus as an industrial host for the microbial production of biopolymers	ZymoChem	Thomas Mand
1:30 PM	2:00 PM	Developing multi-gene CRISPRa/i programs to accelerate DBTL cycles in ABF hosts engineered for chemical production	University of Washington	James Carothers
2:00 PM	2:30 PM	Accelerating engineered microbe optimization through machine learning and multiomics datasets	Lygos, Inc.	Nick Ohler
2:30 PM	3:00 PM	Accelerating polyketide synthase engineering for high TRY production of biofuels and bioproducts	University of California Berkeley	Jay Keasling
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	A two-chamber growth and production system for robust continuous bioprocessing	Pow Genetic Solutions	Maggie Stoeva
3:50 PM	4:20 PM	FOA Closing Discussion		

4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

AGILE BIOFOUNDRY CONSORTIUM

DAY 3 – WEDNESDAY APRIL 5, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	BETO	Gayle Bentley
8:45 AM	9:15 AM	Funding and Partnering Mechanisms	ABF	James Gardner
9:15 AM	9:27 AM	ABF DFO with Invaio	ABF - DFO	Jon Magnuson
9:27 AM	9:39 AM	ABF DFO with Super Brewed Foods	ABF - DFO	Adam Guss
9:39 AM	9:51 AM	ABF DFO with U Delaware/WashU	ABF - DFO	Deepti Tanjore
9:51 AM	10:03 AM	ABF DFO with Enduro Genetics	ABF - DFO	Deepti Tanjore
10:03 AM	10:15 AM	ABF DFO with Kalion, Inc	ABF - DFO	Violeta Sanchez i Nogue
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	10:42 AM	ABF DFO with C16 Bio	ABF - DFO	Di Liu
10:42 AM	10:54 AM	ABF DFO with Pyrone	ABF - DFO	Alberto Rodriguez
10:54 AM	11:06 AM	ABF DFO with Danimer	ABF - DFO	Gregg Beckham
11:06 AM	11:18 AM	ABF DFO with Technology Holding Inc	ABF - DFO	Gregg Beckham
11:18 AM	11:30 AM	ABF DFO with iMicrobes	ABF - DFO	Eric Sundstrom
11:30 AM	12:00 PM	ABF Panel Discussion	ABF	James Gardner
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	2:00 PM	ABPDU - Operations Project	ABPDU	Deepti Tanjore
2:00 PM	2:30 PM	ABPDU - Reflection from Industry Collaborators	ABPDU	Deepti Tanjore
2:30 PM	3:00 PM	ABPDU - Research and Synergistic Efforts	ABPDU	Deepti Tanjore
3:00 PM	3:30 PM	ABF Closing discussion	ABF	Gayle Bentley, Nathan Hillson
3:30 PM	3:50 PM	*Break*	*All*	
3:50 PM	4:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

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BIOCHEMICAL CONVERSION AND LIGNIN UTILIZATION

DAY 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
10:00 AM	10:15 AM	Technology Area Daily Intro	*BETO*	
10:15 AM	10:45 AM	Biochemical Platform Analysis	*NREL*	*Ryan Davis*
10:45 AM	11:15 AM	Biochemical Process Modeling and Simulation	*NREL*	*Yannick Bomble*
11:15 AM	11:45 AM	Analytical Development and Support	*NREL*	*Justin Sluiter*
11:45 AM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Lignin First Biorefinery Development	*NREL*	*Gregg Beckham*
1:30 PM	2:00 PM	Lignin Conversion to Sustainable Aviation Fuel Blendstocks	*NREL*	*Gregg Beckham*
2:00 PM	2:30 PM	Lignin Utilization	*NREL*	*Gregg Beckham*
2:30 PM	2:50 PM	*Break*	*All*	
2:50 PM	3:20 PM	Biological Lignin Valorization	*NREL*	*Davinia Salvachua*
3:20 PM	3:50 PM	SPERLU Selective Process for Efficient Removal of Lignin and Upgrading	*Spero Renewables, LLC*	*Ian Klein*
3:50 PM	4:20 PM	Recyclable Thermoset Polymers from Lignin Derived Phenols	*Spero Renewables, LLC*	*Ian Klein*

4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

BIOCHEMICAL CONVERSION AND LIGNIN UTILIZATION

DAY 5 – FRIDAY APRIL 7, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Continuous Enzymatic Hydrolysis Development	*NREL*	*Mike Himmel*
9:15 AM	9:45 AM	Production of Low-Cost and Highly Fermentable Sugar from Corn Stover via Chemical-Recovery-Free Deacetylation and Mechanical Refining (CRF-DMR) Process	*NREL*	*Xiaowen Chen*
9:45 AM	10:15 AM	Sugar is the New Crude	*AVAPCO LLC*	*Kim Nelson*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Biological Upgrading of Sugars	*NREL*	*Jeffrey Linger*
11:00 AM	11:30 AM	Bench Scale Research and Development	*NREL*	*Nancy Dowe*
11:30 AM	12:00 PM	Cell Free & Immobilization Technologies (CFIT) to Produce Sustainable Aviation Fuels and Other Bioproducts	*NREL*	*Yannick Bomble*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Towards Economical Cell-free Isobutanol Production and Cell-Free Production of Terpenoid Chemical Astaxanthin Using Crude Cofactor Lysates	*Invizyne Technologies, Inc*	*Paul Opgenorth*
1:30 PM	2:00 PM	Engineered reversal of the β-oxidation cycle in clostridia for the synthesis of fuels and chemicals	*Lanzatech (on behalf of Northwestern University)*	*Shivani Garg*
2:00 PM	2:30 PM	Fermentative production of Tulipalin A: a next-generation, sustainable monomer that drastically improves the Performance of pMMA	*Arzeda*	*Alex Zanghellini*
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

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U.S. DEPARTMENT OF ENERGY
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CARBON DIOXIDE UTILIZATION

Day 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
10:00 AM	10:10 AM	Technology Area Introduction	*BETO*	*Ian Rowe*
10:10 AM	10:30 AM	CO2 Consortium Project Management	*NREL*	*Michael Resch*
10:30 AM	11:00 AM	Feasibility Study of Utilizing Electricity to Produce Intermediates from CO2	*NREL*	*Gary Grim*
11:00 AM	11:30 AM	Market, Resources, and Environmental and Energy Justice of CO2-to-Fuels Technologies	*NREL*	*Ella Zhou*
11:30 AM	12:00 PM	Economics and Sustainability of CO2 Utilization Technologies with TEA and LCA	*ANL*	*Michael Wang*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:20 PM	Electrocatalytic CO2 Utilization	*NREL*	*Jack Ferrell*
1:20 PM	1:50 PM	An efficient, scalable process for the electrochemical reduction of CO2 to formate	*NREL*	*KC Neyerlin*
1:50 PM	2:20 PM	Electrode and Membrane Materials for CO2 Electrolyzers A Molecular Approach	*ANL*	*Ksenia Glusac*
2:20 PM	2:50 PM	Integration of CO2 Electrolysis with Microbial Syngas Upgrading	*NREL*	*Michael Resch*
2:50 PM	3:00 PM	*Break*	*All*	

3:00 PM	3:30 PM	Bioconversion of Syngas from Electrochemical CO2 Reduction to SAF	*LBNL*	*Eric Sundstrom*
3:30 PM	4:00 PM	Biological conversion of formic acid for CO2-to-Fuels	*NREL*	*Christopher Johnson*
4:00 PM	4:30 PM	CO2 valorization via rewiring carbon metabolic network	*NREL*	*Wei Xiong*
4:30 PM	5:00 PM	Multiphysics CFD for design and scale-up of gas bioreactors	NREL	Hari Sitaraman
	5:00 PM	*End of Day/Closed Door Comment Review Session*	*Reviewers*	

CARBON DIOXIDE UTILIZATION

Day 5 – FRIDAY APRIL 7, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	BETO	
8:45 AM	9:15 AM	Production Of Bioproducts from Electrochemically-Generated C1 Intermediates	Lanzatech	Jason Bromley
9:15 AM	9:45 AM	Development of a scalable, robust electrocatalytic technology for conversion of CO2 to formic acid via microstructured materials	Montana State University	Lee Spangler
9:45 AM	10:15 AM	Integrating Chemical Catalysis and Biological Conversion of Carbon Intermediates for Deriving Value Added Products from Carbon Dioxide	Johns Hopkins University	Michael Betenbaugh
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Electrolyzers For CO2 Conversion from BioSources	Dioxide Materials	Rich Masel
11:00 AM	11:30 AM	PEM CO2 Electrolyzer Scaleup to enable MW-Scale Electrochemical Modules	Twelve	Sadia Kabir
11:30 AM	12:00 PM	Electrochemical Production of Formic Acid from Carbon Dioxide in Solid Electrolytes	University of Delaware	Feng Jiao
12:00 PM	1:00 PM	*Lunch*	*All*	

2023 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

CATALYTIC UPGRADING

DAY 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
10:00 AM	10:15 AM	Catalytic Upgrading Technology Area Introduction	*BETO*	*Sonia Hammache*
10:15 AM	10:50 AM	Overview of Chemical Catalysis for Bioenergy Consortium	*NREL*	*Joshua Schaidle*
10:50 AM	11:25 AM	Thermochemical Platform Analysis	*NREL*	*Abhijit Dutta*
11:25 AM	12:00 PM	Upgrading of C1 Building Blocks	*NREL*	*Daniel Ruddy*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	ChemCatBio Data Hub	*NREL*	*Frederick Baddour & Carrie Farberow*
1:30 PM	3:00 PM	Catalytic Upgrading of Biochemical Intermediates	*NREL/PNNL/ ORNL/LANL*	*Jeffrey Linger*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Catalytic Upgrading of Pyrolysis Products for the Production of Sustainable Aviation Fuel	*NREL*	*Mike Griffin*
3:50 PM	4:20 PM	Low Pressure Hydrogenolysis Catalysts for Bioproduct Upgrading w/Visolis	*PNNL/Visolis*	*Karthi Ramasamy*
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

CATALYTIC UPGRADING				
DAY 5 – FRIDAY APRIL 7, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Sonia Hammache*
8:45 AM	9:15 AM	Upgrading of C2 Intermediates	*ORNL*	*Andy Sutton*
9:15 AM	9:45 AM	Upgrading of C2 Intermediates	*PNNL*	*Robert Dagle*
9:45 AM	10:15 AM	Catalytic Process Intensification of Bio-Renewable Surfactants Platform w/Sironix	*LANL/Sironix*	*Claire Yang*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:15 AM	Advanced Catalyst Synthesis and Characterization	*NREL/ANL/ ORNL*	*Susan Habas*
11:15 AM	12:00 PM	Catalyst Deactivation Mitigation for Biomass Conversion	*PNNL*	*Huamin Wang*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	2:00 PM	Consortium for Computational Physics and Chemistry	*ORNL*	*Jim Parks*
2:00 PM	2:30 PM	Catalyst Development for Selective Electrochemical Reduction of CO2 to High-value Chemical Precursors w/Opus-12	*NREL/Opus 12*	*Frederick Baddour*
2:30 PM	3:00 PM	Syngas Derived Mixed Olefin Oligomerization for Sustainable Aviation Fuel	*PNNL*	*Karthi Ramasamy*
3:00 PM	3:05 PM	*Break*	*All*	
3:05 PM	3:35 PM	Intensified biogas conversion to value-added fuels and chemicals	*University of South Florida*	*John Kuhn*
3:35 PM	4:00 PM	Closed Door Comment Review Session	*Reviewers*	

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U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

DATA, MODELING, AND ANALYSIS PROGRAM

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
1:00 PM	1:15 PM	Technology Area Introduction	*BETO*	*Andrea Bailey - Technology Manager*
1:15 PM	1:45 PM	Environmentally-extended Multi-regional Projection of Lifecycle and Occupational energY futures (EMPLOY)	*NREL*	*Andre Fernandes Tomon Avelino*
1:45 PM	2:15 PM	GCAM Bioenergy and Land Use Modeling and Directed R&D	*PNNL*	*Marshall Wise*
2:15 PM	2:45 PM	Agent-based Modeling for the Multi-objective Optimization of Energy Production Pathways: Integrated Techno-economics and Life Cycle Assessment	*Colorado State University*	*Jason Quinn*
2:45 PM	3:05 PM	*Break*	*All*	
3:05 PM	3:35 PM	Bioeconomy Scenario Analysis and Modeling	*NREL*	*Emily Newes*
3:35 PM	4:05 PM	Biofuels Information Center (BIC)	*NREL*	*Kristi Moriarty*
4:05 PM	4:45 PM	*Closed Door Comment Review Session*	*Reviewers*	

DATA, MODELING, AND ANALYSIS PROGRAM				
DAY 2 – TUESDAY APRIL 4, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:35 AM	Technology Area Daily Intro	*BETO*	*Andrea Bailey*
8:35 AM	9:05 AM	Scaling up the ecosystem services of bioenergy landscapes	*ANL*	*John Quinn*
9:05 AM	9:35 AM	Visualizing Ecosystem Service Portfolios of Agricultural and Forestry Biomass Production	*ORNL*	*Yetta Jager*
9:35 AM	10:05 AM	EXCHANGE: Expanding the Conversion of Habitat in the Northern Great Plains Ecosystem	*University of Nebraska - Lincoln*	*Daren Redfearn*
10:05 AM	10:20 AM	*Break*	*All*	
10:20 AM	10:50 AM	PoSIES: Populus in the Southeast for Integrated Ecosystem Services	*Mississippi State University*	*Heidi Reninger*
10:50 AM	11:20 AM	Evaluation of Energycane for Bioenergy and Sustainable Agricultural Systems (EC-BioSALTS)	*University of Florida*	*Hardev Sandhu*
11:20 AM	11:50 AM	Integrated Landscape Management	*INL*	*Damon Hartley*
11:50 AM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Sustainable Biomass through Forest Restoration	*PNNL*	*Zhuoran Duan*
1:30 PM	2:00 PM	Water Resource Management for Bioenergy and Bioproducts	*ANL*	*May Wu*
2:00 PM	2:30 PM	Bio-C2G Model for Rapid, Agile Assessment of Biofuel and Co-product Routes	*LBNL*	*Corinne Scown*
2:30 PM	3:10 PM	Life Cycle Analysis of Biofuels and Bioproducts and GREET Development	*ANL*	*Michael Wang*
3:10 PM	3:30 PM	*Break*	*All*	
3:30 PM	4:00 PM	Maximizing co-benefits of carbon removal and sustainable aviation fuels production	*LLNL*	*Wenqin Li*
4:00 PM	4:30 PM	Net Zero Carbon Tech Team - US DRIVE	*NREL, PNNL, ANL, LLNL*	*Ling Tao*
4:30 PM	5:10 PM	*Closed Door Comment Review Session*	*Reviewers*	

DATA, MODELING, AND ANALYSIS PROGRAM				
DAY 3 – WEDNESDAY APRIL 5, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:35 AM	Technology Area Daily Intro	*BETO*	*Andrea Bailey*
8:35 AM	9:05 AM	Bioenergy Knowledge Discovery Framework	*ORNL*	*Esther Parish*
9:05 AM	9:45 AM	Strategic Analysis support	*NREL*	*Ling Tao*
9:45 AM	10:15 AM	Economic Analysis of Market Conditions and Incentives for Efficient Utilization of Biomass in Hard-to-Decarbonize Transportation Sectors	*ORNL*	*Rocio Uria-Martinez*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Optimizing Bio-jet Fuel Blends with the Feedstock to Function tool	*LBNL*	*Vi Rapp*
11:00 AM	11:30 AM	Alternative Marine Fuel Pricing, Supply, and Demand	*NREL*	*Emily Newes*
11:30 AM	12:30 PM	*Lunch*	*All*	
12:30 PM	1:00 PM	A Framework for Evaluating Justice and Equity in the Transition to Renewables: The Bioenergy Case	*ORNL, NREL*	*Rebecca Efroymson*
1:00 PM	1:30 PM	Ecosystem services entrepreneurship technical assistance	*ANL*	*John Quinn*
1:30 PM	2:00 PM	Biofuels Air Emissions Analysis	*NREL*	*Vikram Ravi*
2:00 PM	2:30 PM	Multi-Input, Multi-Output Biorefineries to Reduce Greenhouse Gas and Air Pollutant Emissions	*University of California, Berkeley*	*Corinne Scown*
2:30 PM	3:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

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U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

FEEDSTOCK TECHNOLGIES

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction	*BETO*	*Liz Burrows & Alex Jansen*
1:30 PM	2:00 PM	Feedstock Supply Chain Analysis	*INL*	*David Thompson*
2:00 PM	2:30 PM	Supply Scenario Analysis	*ORNL*	*Matt Langholtz*
2:30 PM	3:00 PM	Bioenergy Feedstock Library	*INL*	*Rachel Emerson*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Resource Mobilization	*INL*	*Pralhad Burli*
3:50 PM	4:20 PM	Triple bottom line sustainability indicators for spatially-explicit, multi-feedstock, multi-technology waste-to-energy supply chains	*PNNL*	*André Coleman*
4:20 PM	4:50 PM	Global impacts of enhancing domestic ecosystem carbon sinks	*NREL & PNNL*	*Patrick Lamers*
4:50 PM	5:20 PM	Benefits and Land Use Effects of US Energy Crop-based Carbon Banking	*ORNL*	*Debo Oladosu*
5:20 PM	6:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

FEEDSTOCK TECHNOLOGIES

DAY 2 – TUESDAY APRIL 4, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Dana Mitchell*

8:45 AM	9:15 AM	Roads to Removal	*LLNL*	*Roger Aines*
9:15 AM	9:45 AM	Next-Generation Feedstocks for the Emerging Bioeconomy	*University of Illinois at Urbana-Champaign*	*DK Lee*
9:45 AM	10:15 AM	Sustainable Herbaceous Energy Crop Production in the Southeast United States	*Texas A&M AgriLife Research*	*Ted Wilson*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Cover crop valorization for biofuels and products	*INL*	*Bill Smith*
11:00 AM	11:30 AM	Maximizing the value of late year cover crops in the Pacific Northwest	*PNNL*	*Daniel Santosa*
11:30 AM	12:00 PM	National availability and costs of cover crops managed as biofuel feedstocks	*ORNL*	*Esther Parish*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Municipal Solid Waste Preprocessing and Decontamination	*INL*	*Vicki Thompson*
1:30 PM	2:00 PM	Artificial Neural Network for MSW Characterization	*AMP Robotics*	*Carson Potter*
2:00 PM	2:30 PM	Decontamination of Non-recyclable MSW and Preprocessing for Conversion to Jet Fuel	*GTI*	*Tim Saunders*
2:30 PM	3:00 PM	Advanced Sensing for Characterization and Sorting of Non-Recyclable Plastics Using Sensor Fusion with Artificial Intelligence	*UHV Technologies*	*Nalin Kumar*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	High Precision Sorting, Fractionation, and Formulation of Municipal Solid Waste for Biochemical Conversion	*University of Cincinnati*	*Maobing Tu*
3:50 PM	4:20 PM	AI-Enabled Hyperspectral Imaging Augmented with Multi-Sensory Information for Rapid/Real-time Analysis of Non-Recyclable Heterogenous MSW for Conversion to Energy	*North Carolina State University*	*Lokendra Pal*
4:20 PM	4:50 PM	Integrated LIBS-RAMAN-AI System for Real-Time, In-Situ Chemical Analysis of MSW Streams	*Lehigh University*	*Carlos Romero*
4:50 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

FEEDSTOCK TECHNOLOGIES

DAY 3 – WEDNESDAY APRIL 5, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Chenlin Li & Mark Elless*

8:45 AM	9:15 AM	Thermal Conditioning for Development of Co-products for Carbon Cycle Sequestration	INL	Jordan Klinger
9:15 AM	9:45 AM	Value-added biocomposite production using off-spec biomass from mechanical fractionation	*ORNL & INL*	*Erin Webb*
9:45 AM	10:15 AM	Polymer products from Lignin through de-aromatization and COOH functionalization	*University of South Carolina*	*Michael Kent*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Value-added process intensification in the supply chain	*INL*	*Bradley Wahlen*
11:00 AM	11:30 AM	Biomass Size Reduction, Drying and Densification	*INL*	*Neal Yancey*
11:30 AM	12:00 PM	Advancing Forest Biorefineries Towards Commercial Applications through Fractionation of Biomass Wastes	*INL & NREL*	*Luke Williams*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Characterization of Mechanical Biomass Particle-Particle and Particle-Wall Interactions	*Pennsylvania State University - University Park*	*Hojae Yi*
1:30 PM	2:00 PM	Enhanced Feedstock Characterization and Modeling to Facilitate Optimal Preprocessing and Deconstruction of Corn Stover	*Monatana State University*	*David Hodge*
2:00 PM	2:30 PM	SWIFT: Single-pass, Weather Independent Fractionation Technology for Improved Property Control of Corn Stover Feedstock.	*University Of Wisconsin*	*Kevin Shinners*
2:30 PM	3:00 PM	Sulfur Profiling in Pine Residues and Its Impact on Thermochemical Conversion	*University of Kentucky*	*Jian Shi*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Modeling Feedstock Performance and Conversion Operations	*Purdue University*	*Michael Ladisch*
3:50 PM	4:20 PM	Machine learning based modeling framework to relate biomass tissue properties with handling and conversion performances	*University of Georgia Research Foundation Inc.*	*Sudhagar Mani*
4:20 PM	4:50 PM	Real time, Integrated Dynamic Control Optimization to Improve the Operational Reliability of a Biomass Dryer	*INL*	*Damon Hartley*
4:50 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

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DETAILED CONFERENCE AGENDA

FEEDSTOCK-CONVERSION INTERFACE CONSORTIUM

DAY 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
10:00 AM	10:15 AM	Technology Area Daily Intro	*BETO*	*Mark Elless & Beau Hoffman*
10:15 AM	11:00 AM	FCIC Overview & Task X - Project Management	*NREL*	*Ed Wolfrum*
11:00 AM	11:30 AM	Task 2 - Feedstock Variability	*NREL*	*Bryon Donohoe*
11:45 AM	1:00 PM	*Lunch*	*All*	*INL*
1:00 PM	1:30 PM	Task 3 - Material Handling	*INL*	*Yidong Xia*
1:30 PM	2:00 PM	Task 5 - Preprocessing	*INL*	*Jordan Klinger*
2:00 PM	2:30 PM	Task 6 - High Temperature Conversion	*ORNL*	*Jim Parks*
2:30 PM	2:50 PM	*Break*	*All*	
2:50 PM	3:20 PM	Task 7 - Low Temperature Conversion	*ANL*	*Phil Laible*
3:20 PM	3:40 PM	Task 1 - Materials of Construction	*ORNL*	*Jun Qu*
3:40 PM	4:00 PM	Task 4- Data Integration and Web Portal	*PNNL*	*Jim Collett/Rachel Emerson*
4:00 PM	4:30 PM	Task 8 - Crosscutting Analysis	*PNNL*	*Erin Webb*
4:30 PM	4:45 PM	Task 9 - Failure Modes & Effects Analysis	*INL*	*Rachel Emerson*
4:45 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

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ORGANIC WASTES CONVERSION

DAY 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
10:00 AM	10:15 AM	Technology Area Daily Intro	*BETO*	
10:15 AM	10:45 AM	Advanced Pretreatment/Anaerobic Digestion	*Washington State University*	*Birgitte Ahring*
10:45 AM	11:15 AM	Develop an efficient and cost-effective novel anaerobic digestion system producing high purity of methane from diverse waste biomass	*Washington State University*	*Shulin Chen*
11:15 AM	11:45 AM	Maximizing Bio-Renewable Energy from Wet Wastes (M-BREWW)	*University of Illinois at Urbana-Champaign*	*Lance Schideman*
11:45 AM	1:00 PM	*Lunch*	All	
1:00 PM	1:30 PM	Integrated biochemical and electrochemical technologies (IBET) to convert organic waste to biopower via North American research and educational partnerships	*University of Michigan*	*Lutgarde Raskin*
1:30 PM	2:00 PM	Biomethanation to Upgrade Biogas to Pipeline Grade Methane	*NREL*	*Kevin Harrison*
2:00 PM	2:30 PM			

2:30 PM	2:50 PM	*Break*	*All*	
2:50 PM	3:20 PM	Upgrading Biogas through in situ Conversion of Carbon Dioxide to Biomethane in Anaerobic Digesters	*Washington University at St. Louis*	*Zhen (Jason) He*
3:20 PM	3:50 PM	Renewable Natural Gas from Carboneaceous Wastes via Phase Transition CO2/O2 Sorbent Enhanced Chemical Looping Gasification	*North Carolina State University*	*Fanxing Li*
3:50 PM	4:20 PM	Catalytic Upgrading of Carbohydrates in Waste Streams to Hydrocarbons	*North Carolina State University*	*Sunkyu Park*
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

ORGANIC WASTES CONVERSION

DAY 5 – FRIDAY APRIL 7, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Waste-to-Energy Technical Assistance	*NREL*	*Anelia Milbrandt*
9:15 AM	9:45 AM	Waste-to-Energy: Optimized feedstock aggregation and blending at scale	*PNNL*	*Tim Seiple*
9:45 AM	10:15 AM	Analysis and Sustainability Interface - PNNL	*PNNL*	*Lesley Snowden-Swan*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Bench Scale HTL of Wet Wastes	*PNNL*	*Michael Thorson*
11:00 AM	11:30 AM	Denitrogenation of wet waste-derived biocrude to meet SAF specifications	*PNNL*	*Michael Thorson*
11:30 AM	12:00 PM	A Catalytic Process to Convert Municipal Solid Waste Components to Energy	*Worcester Polytechnic Institute*	*Mike Timko*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Synergistic Thermo-Microbial-Electrochemical (T-MEC) Approach for Drop-In Fuel Production from Wet Waste	*Princeton University*	*Z. Jason Ren*
1:30 PM	2:00 PM	Novel and Viable Technologies for Converting Wet Organic Waste Streams to Higher Value Products	*The Research Foundation of SUNY, University of Albany*	*Yanna Liang*

2:00 PM	2:30 PM	Innovative Polyhydroxyalkanoates (PHA) Production with Microbial Electrochemical Technology (MET)	*University of Maryland*	*Stephanie Lansing*
2:30 PM	3:00 PM	Electro-Enhanced Conversion of Wet Waste to Products Beyond Methane	*Colorado State University*	*Ken Reardon*
3:00 PM	3:20 PM	*Break*	*All*	
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

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PERFORMANCE-ADVANTAGED BIOPRODUCTS, BIOPROCESSING SEPARATIONS

DAY 4 – THURSDAY APRIL 6, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
10:00 AM	10:30 AM	Technology Area Daily Intro	*BETO*	*Coralie Backlund*
10:30 AM	11:10 AM	Overview, Project Management and Integration, & DEI		*Lauren Valentino*
11:10 AM	11:30 PM	R&D-Guiding TEA and LCA		*Jian Liu / Thathiana Benavides*
11:30 PM	11:50 PM	Adsorption Based ISPR for ABF products		*Gregg Beckham*
11:50 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:20 PM	Volatile Products Recovery		*Phil Laible*
1:20 PM	1:40 PM	Diol Separations		*Ramesh Bhave*
1:40 PM	2:00 PM	Enabling SAF production by Adsorptive Denitrogenation (ADN)		*Miki Santosa*
2:00 PM	2:20 PM	Computational Studies Supporting Experimental Designs		*Difan Zhang*
2:20 PM	2:50 PM	*Break*	*All*	
2:50 PM	3:10 PM	Co-optimization of Scalable Membrane Separation Processes and Materials		*Meltem Urgun-Demirtas*
3:10 PM	3:30 PM	Electrochemical Separation Technologies to Extract Intermediate Organic Compounds		*Yupo Lin*
3:30 PM	3:50 PM	Continuous Counter Current Chromatography		*Gregg Beckham*

3:50 PM	4:10 PM	Q&A		
3:50 PM	4:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

PERFORMANCE ADVANTAGED BIOPRODUCTS, BIOPROCESSING SEPARATIONS

DAY 5 – FRIDAY APRIL 7, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Coralie Backlund*
8:45 AM	9:15 AM	High Solids In Situ Product Recovery; The Next Generation of Arrested Anaerobic Digestion Technology	*Quasar Energy Group, LLC*	*Xumeng Ge*
9:15 AM	9:45 AM	Continuous Biobutanol Fermentation Integrated with Membrane Solvent Extraction	*Archer Daniels Midland, Co. (ADM)*	*Jesse McVay*
9:45 AM	10:15 AM	Enabling Lignin Valorization with Liquid Liquid Chromatography	*Lignolix, Inc*	*Eric Gottlieb*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Physical Property Data and Models in Support of Bioprocessing Separation Technologies for Organic Acids Separation	*RAPID Manufacturing Institute*	*Ignasi Palou-Rivera*
11:00 AM	11:30 AM	Inverse biopolymer design through machine learning and molecular simulation	*NREL*	*Brandon Knott*
11:30 AM	12:00 PM	Synthesis and Analysis of Performance-Advantaged Bioproducts	*NREL*	*Gregg Beckham*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Identifying Performance Advantaged Biobased Chemicals Utilizing Bioprivileged Molecules	*Iowa State University*	*Brent Shanks*
1:30 PM	2:00 PM	Upcycling of CFRP Waste: Viable Eco-friendly Chemical Recycling and Manufacturing of Novel Repairable and Recyclable Composites	*Washington State University*	*Jinwen Zhang*
2:00 PM	2:30 PM	Bioconversion of Heterogeneous Polyester Wastes to High-Value Chemical Products	*UMass Lowell*	*Margaret Sobkowicz-Klein*
2:30 PM	3:00 PM	Design and development of bio-advantaged vitrimers as closed-loop bioproducts	*University of California, Berkeley*	*Jay Keasling*
2:30 PM	3:30 PM	*Closed Door Comment Review Session*		

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PLASTICS DECONSTRUCTION AND REDESIGN

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction	*BETO*	*Coralie Backlund*
1:30 PM	2:00 PM	Introduction & BOTTLE Overview	*BOTTLE Consortium*	*Gregg Beckham, Meredith Doyle, Michelle Reed*
2:00 PM	2:15 PM	Analysis	*BOTTLE Consortium*	*Jason DesVeaux, Taylor Uekert*
2:15 PM	2:45 PM	Deconstruction	*BOTTLE Consortium*	*Yuriy Román-Leshkov, Taraka Dale*
2:45 PM	3:00 PM	Q&A		
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:35 PM	Upcycling	*BOTTLE Consortium*	*Adam Guss*
3:35 PM	3:55 PM	Redesign & Modeling	*BOTTLE Consortium*	*Eugene Chen, Linda Broadbelt*
3:55 PM	4:10 PM	Characterization	*BOTTLE Consortium*	*Christopher Tassone, Meltem Urgun-Demirtas*
4:10 PM	4:25 PM	Q&A		
4:25 PM	4:40 PM	Industry Projects & Engagement	*BOTTLE Consortium*	*Kat Knauer*
4:40 PM	4:50 PM	Q&A		
4:50 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

PLASTICS DECONSTRUCTION AND REDESIGN

DAY 2 – TUESDAY APRIL 4, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Coralie Backlund*
8:45 AM	9:15 AM	Hybrid Approach to Repurpose Plastics Using Novel Engineered Processes (HARNESS)	*Battelle Memorial Institute*	*Kate Kucharzyk*
9:15 AM	10:15 AM	Multi-University Center on Chemical Upcycling of Waste Plastics (CUWP)	*University of Wisconsin-Madison*	*George Huber*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	ResIn: Responsible Innovation for Highly Recyclable Plastics	*Northwestern University*	*Linda Broadbelt*
11:00 AM	11:30 AM	Trojan Horse Repeat Sequences for Triggered Chemical Recycling of Polyesters for Films and Bottles	*Iowa State University*	*Eric Cochran*
11:30 AM	12:00 PM	Upcycling PET via the VolCat Process	*IBM*	*Greg Breyta*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Designing Recyclable Biomass-Based Polyesters	*University of Wisconsin, Madison*	*George Huber*
1:30 PM	2:00 PM	Production of high-performance biodegradable polyurethane products made from algae precursors	*University of California, San Diego*	*Michael Burkart*
2:00 PM	2:30 PM	Hybrid Chemical-Mechanical Separation and Upcycling of Mixed Plastic Waste	*Case Western*	*Mike Hore*
2:30 PM	3:00 PM	Circular Economy of Composites Enabled by TuFF Technology	*U Delaware*	*Joseph Deitzel*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Highly Recyclable Thermosets for Lightweight Composites	*U of Akron*	*Junpeng Wang*
3:50 PM	4:20 PM	Modular Catalytic Reactors for Single-Use Polyolefin Conversion to Lubricating Oils from Upcycled Plastics (LOUPs)	*Iowa State*	*Aaron Sadow*
4:20 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

PLASTICS DECONSTRUCTION AND REDESIGN				
DAY 3 – WEDNESDAY APRIL 5, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	*Coralie Backlund*
8:45 AM	9:15 AM	Upscaling of non-recyclable plastic waste into CarbonSmartTM monomers	*LanzaTech*	*Ching Liang*
9:15 AM	9:45 AM	Degradable Biocomposite Thermoplastic Polyurethanes	*UCSD*	*Jon Pokorski*
9:45 AM	10:15 AM	Recyclable and Biodegradable Manufacturing and Processing of Plastics and Polymers based on Renewable Branched Caprolactones	*U Minnesota*	*Paul Dauenhauer*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	10:50 AM	A closed loop upcycling of single-use plastic films to biodegradable polymers	*Iowa State*	*Xianglan Ba*
10:50 AM	11:10 AM	Integrated Chemolytic Delamination and Plasma Carbonization for the Upcycling of Single-Use Multi-layer Plastic Films	*U Mass Lowell*	*Hsi-Wu Wong*
11:10 AM	11:30 AM	Catalytic Deconstruction of Plasma treated Single-Use Plastics to Value-added Chemicals and Novel Materials	*NC A&T*	*Debasish Kuila*
11:30 AM	11:50 AM	Process Intensified Modular Upcycling of Plastic Films to Monomers by Microwave Catalysis	*WVU*	*Yuxin Wang*
11:50 AM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:20 PM	All-Polyester Multilayer Plastics (All-Polyester MLPs): A Redesign for Inherently Recyclable Plastics	*MI State*	*Muhammad Rabnawaz*
1:20 PM	1:40 PM	Infinitely Recyclable and Biodegradable Films for Improved Food Packaging	*TDA*	*Ally Robinson*
1:40 PM	2:00 PM	Development of Infinitely Recyclable Single-Polymer Chemistry Bio-based Multilayer Films Using Ethylene/Carbon Monoxide Copolymers	*Braskem*	*Hadi Mohammadi*
2:00 PM	3:00 PM	*Closed Door Comment Review Session*		

2023 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

SYSTEMS DEVELOPMENT & INTEGRATION – EMERGING AND SUPPORTING TECHNOLOGIES

DAY 1 – MONDAY APRIL 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction - SDI	*BETO*	*SDI Session Lead*
1:30 PM	2:00 PM	Cellulosic-Derived Advantage Jet Fuel	*The Regents of the University of Colorado*	*J. Will Medlin*
2:00 PM	2:30 PM	Production of renewable cycloalkanes from ethanol for blending with jet fuel to enhance energy density and material compatibility and reduce particulate emissions	*Vertimass*	*John Hannon*
2:30 PM	3:00 PM	Higher energy-content jet blending components derived from ethanol	*Purdue University*	*Gozdem Kilaz*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Novel Method for Biomass Conversion to Renewable Jet Fuel Blend	*Technology Holding*	*Mukund Karanjikar*
3:50 PM	4:20 PM	Drop-in Renewable Jet Fuel from Brown Grease via the Biofuels ISOCONVERSION Process	*Applied Research Associates*	*Jeff Rine*
4:20 PM	4:50 PM	Hybrid HEFA-HDCJ Process for the Production of Jet Fuel Blendstocks	*Washington State University*	*Manuel Garcia-Perez*
4:50 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

SYSTEMS DEVELOPMENT & INTEGRATION
EMERGING AND SUPPORTING TECHNOLOGIES

DAY 2 – TUESDAY APRIL 4, 2023

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Virtual engineering of low-temperature conversion	*NREL*	*Ethan Young*
9:15 AM	9:45 AM	Improved biomass feedstock materials handling and feeding engineering data sets, design methods, and modeling/simulation tools	*Forest Concepts*	*James Dooley*
9:45 AM	10:15 AM	Agricultural and Woody Biomass to Diesel Fuel with FT Intermediate	*West Biofuels*	*Matthew Summers*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Nearcritical Fluids Treatment for Liquefaction and Extraction of Bio-Fuels	*University of Maryland*	*Ashwani Gupta*
11:00 AM	11:30 AM	Scaling Up Biocrude Derived Anode Material (BDAM)	*North Carolina State University*	*Sunkyu Park*
11:30 AM	12:00 PM	Bio-crude Production and Upgrading to Renewable Diesel	*Research Triangle Institute*	*Dave Dayton*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Microchannel Reactor for Ethanol to n-Butene Conversion	*Oregon State University*	*Brian Paul*
1:30 PM	2:00 PM	Integrated Reactive Catalytic Fast Pyrolysis System for Advanced Hydrocarbon Biofuels	*Research Triangle Institute*	*Dave Dayton*
2:00 PM	2:30 PM	Integrated Separations to Improve Biocrude Recovery for Biofuels and Bioproducts	*Research Triangle Institute*	*Dave Dayton*
2:30 PM	3:00 PM	Bio Oil Co Processing with Refinery Streams - PNNL, NREL, LANL	*NREL*	*Reinhard Seiser*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	4:05 PM	Advancing the Development of Biofuels for the Maritime Sector – ORNL, NREL, PNNL, ANL	*ORNL*	*Michael Kass*
4:05 PM	4:35 PM	Multi-stream Integrated Biorefinery Enabled by Waste Processing	*Texas A&M AgriLife Research*	

4:35 PM	5:15 PM	*Closed Door Comment Review Session*	*Reviewers*	

SYSTEMS DEVELOPMENT & INTEGRATION EMERGING AND SUPPORTING TECHNOLOGIES				
DAY 3 – WEDNESDAY, April 5, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Advancing wood heater evaluation methodology for accelerating innovation - LBNL, BNL	*BNL*	*Rebecca Trojanowski*
9:15 AM	9:45 AM	Automated Wood Stove UFEC23	*ISB Marketing*	*Guillaume Thibodeau-Fortin*
9:45 AM	10:15 AM	Swirl Stove: Swirling combustion for efficient wood burning	*MF Fire*	*Paul LaPorte*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Fire MAPS - Secure Performance Monitoring and User Alerts System (for wood burning stoves)	*MF Fire*	*Paul LaPorte*
11:00 AM	11:30 AM	Development of Forced-Air Combustion Systems with Automated Controls to Reduce Emissions from Cordwood Room Heaters in Everyday Use	*Oregon State University*	*Nordica MacCarty*
11:30 AM	12:00 PM	Clean Combustion Technology with Efficient and Autonomous Wood Heater Operation over the Full Cycle	*The University of Alabama*	*Ajay Agrawal*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Simulation-Driven Design Optimization and Automation for Cordwood-Fueled Room Heaters	*Ohio State University*	*Shawn Midlam-Mohler*
1:30 PM	2:00 PM	Advanced Low-Emission Residential Fluid-Bed Biomass Combustor	*NTRE Tech*	*Bartev Sakadjian*
2:00 PM	2:40 PM	*Closed Door Comment Review Session*	*Reviewers*	

2023 PROJECT PEER REVIEW

U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

SYSTEMS DEVELOPMENT & INTEGRATION – SCALE-UP PORTFOLIO

DAY 1 – MONDAY, April 3, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
1:00 PM	1:30 PM	Technology Area Introduction - SDI	*BETO*	*SDI Session Lead*
1:30 PM	2:00 PM	Risk Management Program for BETO Scale-Up Projects	*PNNL*	*Hannah Rabinowitz*
2:00 PM	2:30 PM	Landfill Off-gas To Ultra-low carbon intensity SAF	*SkyNRG Americas*	*Brian James*
2:30 PM	3:00 PM	Production of Sustainable Aviation Fuels from Corn Stover via NREL's Deacetylation and Mechanical Refining Technology (SAFFiRE)	*D3MAX*	*Mark Yancey*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Demonstration Scale-up: TRIFTS Biogas to Renewable Fuel	*T2C Energy*	*Devin Walker*
3:50 PM	4:20 PM	TRIFTS Catalytic Conversion of Biogas to Drop-in Renewable Diesel Fuel	*T2C Energy*	*Devin Walker*
4:20 PM	4:50 PM	Advance Biofuels and Bioproducts with AVAP	*AVAPCO*	*Ryan Zebroski*
4:50 PM	5:30 PM	*Closed Door Comment Review Session*	*Reviewers*	

SYSTEMS DEVELOPMENT & INTEGRATION SCALE UP PORTFOLIO				
DAY 2 – TUESDAY, April 4, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Production of Liquid Hydrocarbons from Anaerobic Digester Gas	*OxEon Energy*	*Jessica Elwell*
9:15 AM	9:45 AM	Field-to-Fuel Production of Carbon-Negative Sustainable Aviation Fuel from Regenerative Agriculture Biomass	*Alder Energy*	*Derek Vardon*
9:45 AM	10:15 AM	Low Carbon Hydrocarbon Fuels From Industrial Off Gas	*LanzaTech*	*Laurel Harmon*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Ultra-low Sulfur Winterized Diesel	*LanzaTech*	*Rick Rosin*
11:00 AM	11:30 AM	*Break*	*All*	
11:30 AM	12:00 PM	Rialto Advanced Pyrolysis Integrated Biorefinery	*Rialto*	*Andrew Dale*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	Novel Electric Reformer for Drop in Fuels from Biogas or Waste CO2	*Gas Technology Institute*	*Terry Marker*
1:30 PM	2:00 PM	R-GAS™ Advanced Gasification Pre-Pilot Demonstration for Biofuels (BioR-GAS)	*Gas Technology Institute*	*Zach El Zahab*
2:00 PM	2:30 PM	*Break*	*All*	
2:30 PM	3:00 PM	Cool GTL® for the Production of Jet Fuel from Biogas	*Gas Technology Institute*	*Terry Marker*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Scale-up of Novel Algae Drying and Extraction Unit Operations	*Global Algae Innovations*	*Dave Hazlebeck*
3:50 PM	4:20 PM	Integration of IH2 with the Cool Reformer for the Conversion of Cellulosic Biomass to Drop-In Fuels	*Gas Technology Institute*	*Terry Marker*
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	

SYSTEMS DEVELOPMENT & INTEGRATION SCALE UP PORTFOLIO				
DAY 3 – WEDNESDAY, April 5, 2023				
Start Time (MT)	**End Time (MT)**	**Title**	**Organization**	**Speaker**
8:30 AM	8:45 AM	Technology Area Daily Intro	*BETO*	
8:45 AM	9:15 AM	Biomass - Feedstock User Facility	*INL*	*Neal Yancey*
9:15 AM	9:45 AM	PNNL Hydrothermal PDUs	*PNNL*	*Dan Anderson*
9:45 AM	10:15 AM	TCPDU - Catalytic Carbon Conversion Center of Piloting and Excellence (C4PE)	*NREL*	*David Robichaud*
10:15 AM	10:30 AM	*Break*	*All*	
10:30 AM	11:00 AM	Biochemical Pilot Scale Support and Process Integrations	*NREL*	*Dan Schell*
11:00 AM	11:30 AM	Direct Air Capture Algae Cultivation	Global Algae Innovations	Dave Hazlebeck
11:30 AM	12:00 PM	Pilot-Scale Algal Oil Production	*Global Algae Innovations*	*Dave Hazlebeck*
12:00 PM	1:00 PM	*Lunch*	*All*	
1:00 PM	1:30 PM	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*
1:30 PM	2:00 PM	Modeling Flow Behavior in a Disc-Refiner for DMR process	*NREL*	*Xiaowen Chen*
2:00 PM	2:30 PM	Solid Lignin Recovery	*NREL*	*Dan Schell*
2:30 PM	3:00 PM	Innovation and optimization of the Szego Mill for reliable, efficient, and successful up-scaling of the deacetylation and mechanical refining process for biofuel production	*University of Alabama*	*Luke Brewer*
3:00 PM	3:20 PM	*Break*	*All*	
3:20 PM	3:50 PM	Scale-up of the Primary Conversion Reactor to Generate a Lignin-Derived Cyclohexane Jet Fuel	*University of North Dakota*	*Wayne Seames*
3:50 PM	4:20 PM	Conversion of 2,3-Butanediol to Biojet Fuel: Scale-up and Techno-economic Analysis of Energy-Efficient Separations and Fermentative Diol Production	*Georgia Institute of Technology*	*Sankar Nair*
4:20 PM	5:00 PM	*Closed Door Comment Review Session*	*Reviewers*	