

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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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	<i>Registration, Breakfast</i>		
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	9:55 AM	Data Modeling and Analysis Overview	BETO	Jay Fitzgerald - Chief Scientist
9:55 AM	10:15 AM	Renewable Carbon Resources Overview	BETO	Nichole Fitzgerald - Program Manager
10:15 AM	10:35 AM	Conversion Technologies Overview	BETO	Kevin Craig - Program Manager
10:35 AM	10:55 AM	Systems Development and Integration Overview	BETO	Jim Spaeth - Program Manager
10:55 AM	11:10 AM	Thoughts from BETO's Chief Engineer	BETO	Reyhaneh Shenassa - Chief Engineer
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	<i>Adjourn for Lunch and move to Technology Area Breakouts</i>		

MID-WEEK PLENARY

Day 4 THURSDAY, APRIL 6, 2023				
Start Time (MT)	End Time (MT)	Title	Organization	Speaker
8:00 AM	8:30 AM	<i>Registration, Breakfast</i>	<i>All</i>	
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	<i>Adjourn for Lunch and move to Technology Area Breakouts</i>	<i>All</i>	

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U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

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

<p>DAY 3: Wednesday, April 5</p>	<p>Agenda Item</p>
	<ul style="list-style-type: none"> • 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

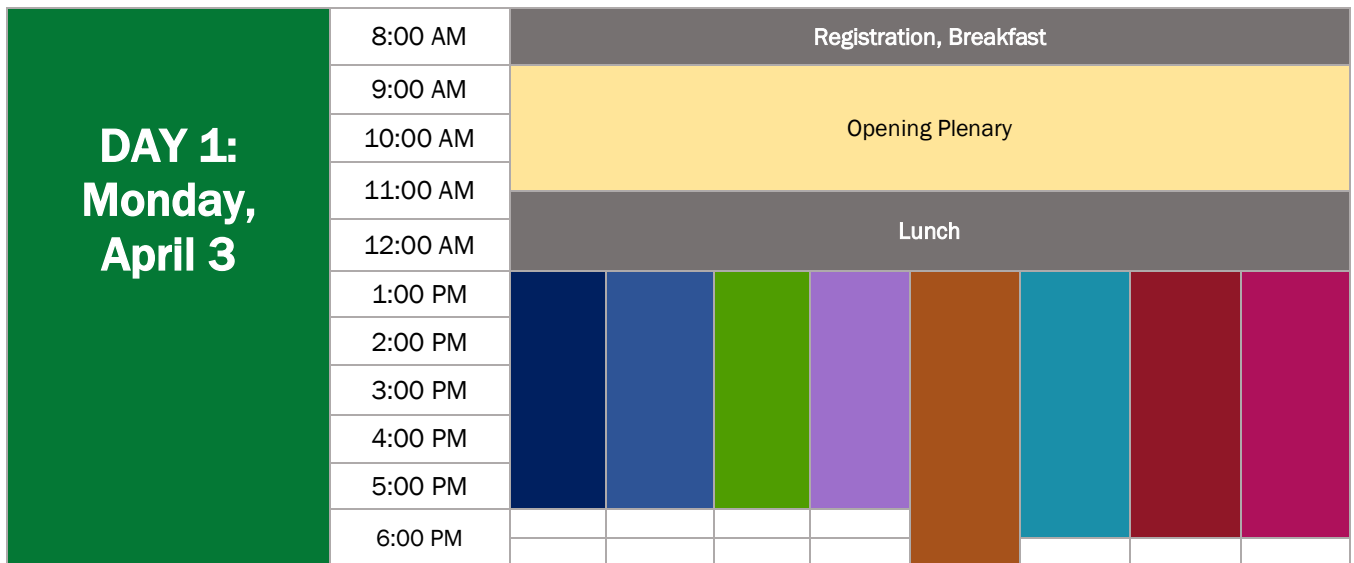
<p>DAY 4: Thursday, April 6</p>	<p>Agenda Item</p>
	<ul style="list-style-type: none"> • <i>Mid-week Kick-off and Plenary Session</i> • Biochemical Conversion and Lignin Utilization • Carbon Dioxide Utilization • Catalytic Upgrading • Feedstock-Conversion Interface Consortium • Organic Waste Conversion • Performance-Advantaged Bioproducts and Bioprocessing Separations

<p>DAY 5: Friday, April 7</p>	<p>Agenda Item</p>
	<ul style="list-style-type: none"> • Biochemical Conversion and Lignin Utilization • Carbon Dioxide Utilization • Catalytic Upgrading • Organic Waste Conversion • Performance-Advantaged Bioproducts and Bioprocessing Separations

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U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

AGENDA AT A GLANCE



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

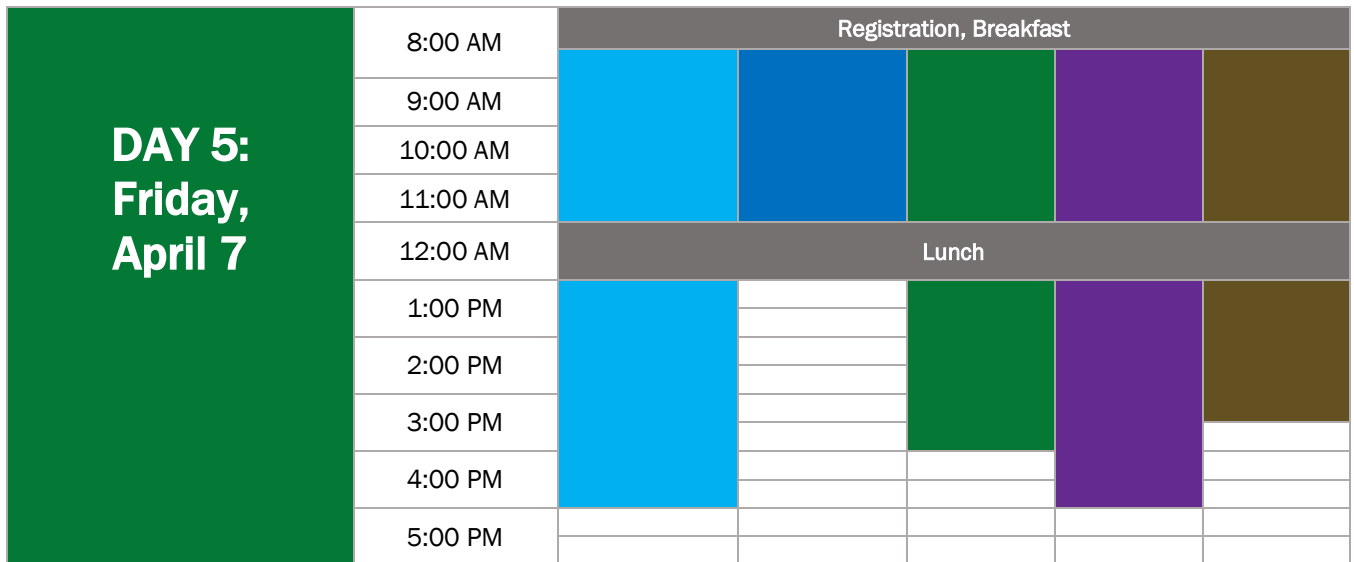
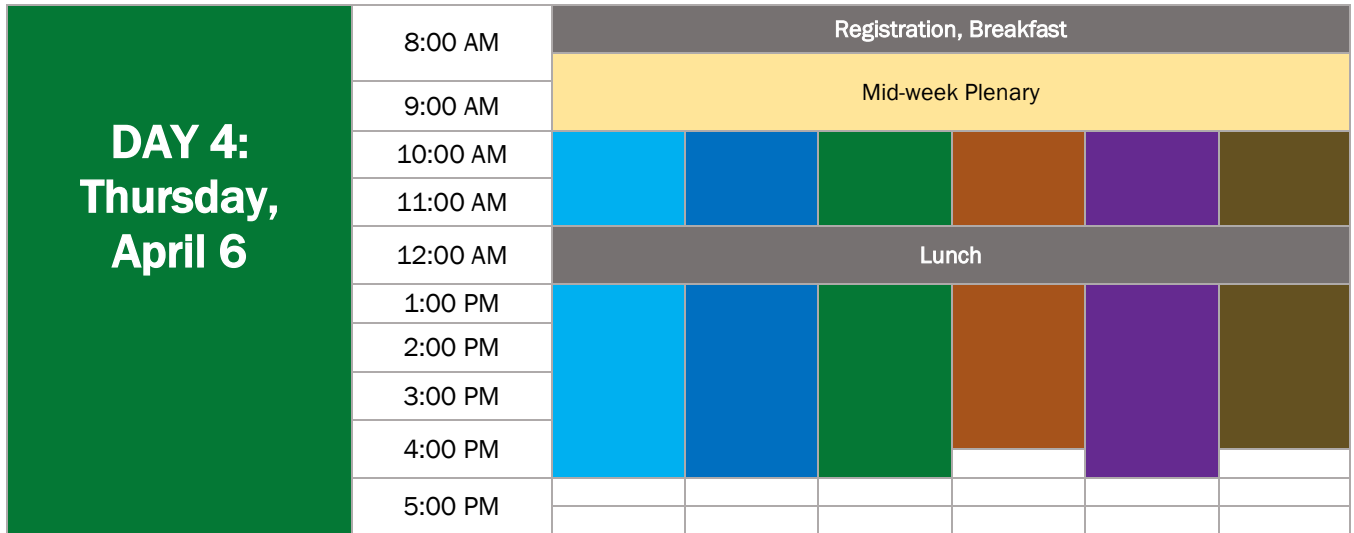
AGENDA AT A GLANCE

DAY 2: Tuesday, April 4	8:00 AM	Registration, Breakfast							
	9:00 AM								
	10:00 AM								
	11:00 AM								
	12:00 AM	Lunch							
	1:00 PM								
	2:00 PM								
	3:00 PM								
	4:00 PM								
	5:00 PM								
	6:00 PM								

DAY 3: Wednesday, April 5	8:00 AM	Registration, Breakfast					
	9:00 AM						
	10:00 AM						
	11:00 AM						
	12:00 AM	Lunch					
	1:00 PM						
	2:00 PM						
	3:00 PM						
	4:00 PM						
	5:00 PM						

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> ● REGISTRATION ● ADVANCED ALGAL SYSTEMS – CULTIVATION AND STRAIN DEVELOPMENT ● ADVANCED ALGAL SYSTEMS – INTEGRATION | <ul style="list-style-type: none"> ● AGILE BIOFOUNDRY ● DATA, MODELING AND ANALYSIS ● FEEDSTOCK TECHNOLOGIES | <ul style="list-style-type: none"> ● PLASTICS DECONSTRUCTION AND REDESIGN ● SYSTEMS DEVELOPMENT & INTEGRATION – EMERGING AND SUPPORTING TECHNOLOGIES ● SYSTEMS DEVELOPMENT & INTEGRATION – SCALE-UP PORTFOLIO |
|---|---|--|

AGENDA AT A GLANCE



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

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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 DISCOVER	PNNL, LANL, SNL, NREL, ASU	Michael Huesemann
9:15 AM	9:45 AM	Algae DISCOVER	PNNL, LANL, SNL, NREL, ASU	Michael Huesemann
9:45 AM	10:00 AM	Algae DISCOVER	PNNL, LANL, SNL, NREL, ASU	Michael Huesemann
10:00 AM	10:30 AM	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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 CO ₂ direct air capture cultivation EE0009675	Global Algae Innovations	Dave Hazlebeck
3:00 PM	3:20 PM	<i>Break</i>	<i>All</i>	
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	<i>Adjourn</i>	<i>All</i>	
4:30 PM	5:00 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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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	<i>Closed Door Review Session</i>	<i>Reviewers</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>		
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	<i>Break</i>		
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
3:50 PM	4:30 PM	Closed Door Comment Review Session	Reviewers	

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DETAILED CONFERENCE AGENDA

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

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
4:20 PM	5:00 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	
BIOCHEMICAL CONVERSION AND LIGNIN UTILIZATION				
DAY 5 – FRIDAY APRIL 7, 2023				
8:30 AM	8:45 AM	Technology Area Daily Intro	<i>BETO</i>	
8:45 AM	9:15 AM	Continuous Enzymatic Hydrolysis Development	<i>NREL</i>	<i>Mike Himmel</i>
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	<i>NREL</i>	<i>Xiaowen Chen</i>
9:45 AM	10:15 AM	Sugar is the New Crude	<i>AVAPCO LLC</i>	<i>Kim Nelson</i>
10:15 AM	10:30 AM	<i>Break</i>	<i>All</i>	
10:30 AM	11:00 AM	Biological Upgrading of Sugars	<i>NREL</i>	<i>Jeffrey Linger</i>
11:00 AM	11:30 AM	Bench Scale Research and Development	<i>NREL</i>	<i>Nancy Dowe</i>
11:30 AM	12:00 PM	Cell Free & Immobilization Technologies (CFIT) to Produce Sustainable Aviation Fuels and Other Bioproducts	<i>NREL</i>	<i>Yannick Bomble</i>
12:00 PM	1:00 PM	<i>Lunch</i>	<i>All</i>	
1:00 PM	1:30 PM	Towards Economical Cell-free Isobutanol Production and Cell-Free Production of Terpenoid Chemical Astaxanthin Using Crude Cofactor Lysates	<i>Invizyne Technologies, Inc</i>	<i>Paul Opgenorth</i>
1:30 PM	2:00 PM	Engineered reversal of the β -oxidation cycle in clostridia for the synthesis of fuels and chemicals	<i>Lanzatech (on behalf of Northwestern University)</i>	<i>Shivani Garg</i>
2:00 PM	2:30 PM	Fermentative production of Tulipalin A: a next-generation, sustainable monomer that drastically improves the Performance of pMMA	<i>Arzeda</i>	<i>Alex Zanghellini</i>
4:20 PM	5:00 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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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	<i>End of Day/Closed Door Comment Review Session</i>	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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	

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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
10:20 AM	10:50 AM	PoSIES: Populus in the Southeast for Integrated Ecosystem Services	Mississippi State University	Heidi Reningen
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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U.S. DEPARTMENT OF ENERGY
 BIOENERGY TECHNOLOGIES OFFICE

DETAILED CONFERENCE AGENDA

FEEDSTOCK 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	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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Break</i>	<i>All</i>	
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	Zheng Yao
4:50 PM	5:30 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	Montana 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 Shinnars
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	<i>Break</i>	<i>All</i>	
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	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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U.S. DEPARTMENT OF ENERGY
 BIOENERGY TECHNOLOGIES OFFICE

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	<i>Break</i>	<i>All</i>	
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 Carbonaceous Wastes via Phase Transition CO ₂ /O ₂ 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	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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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U.S. DEPARTMENT OF ENERGY
BIOENERGY TECHNOLOGIES OFFICE

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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 Bhav
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	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	
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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Closed Door Comment Review Session</i>		

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U.S. DEPARTMENT OF ENERGY
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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 Urgan-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 (HARNES)	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 CarbonSmart™ 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	<i>Break</i>	<i>All</i>	
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	<i>Lunch</i>	<i>All</i>	
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	<i>Closed Door Comment Review Session</i>		

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	

Start Time (MT)	End Time (MT)	Title	Organization	Speaker
4:35 PM	5:15 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	
SYSTEMS DEVELOPMENT & INTEGRATION EMERGING AND SUPPORTING TECHNOLOGIES				
DAY 3 – WEDNESDAY, April 5, 2023				
8:30 AM	8:45 AM	Technology Area Daily Intro	<i>BETO</i>	
8:45 AM	9:15 AM	Advancing wood heater evaluation methodology for accelerating innovation - LBNL, BNL	<i>BNL</i>	<i>Rebecca Trojanowski</i>
9:15 AM	9:45 AM	Automated Wood Stove UFEC23	<i>ISB Marketing</i>	<i>Guillaume Thibodeau-Fortin</i>
9:45 AM	10:15 AM	Swirl Stove: Swirling combustion for efficient wood burning	<i>MF Fire</i>	<i>Paul LaPorte</i>
10:15 AM	10:30 AM	<i>Break</i>	<i>All</i>	
10:30 AM	11:00 AM	Fire MAPS - Secure Performance Monitoring and User Alerts System (for wood burning stoves)	<i>MF Fire</i>	<i>Paul LaPorte</i>
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	<i>Oregon State University</i>	<i>Nordica MacCarty</i>
11:30 AM	12:00 PM	Clean Combustion Technology with Efficient and Autonomous Wood Heater Operation over the Full Cycle	<i>The University of Alabama</i>	<i>Ajay Agrawal</i>
12:00 PM	1:00 PM	<i>Lunch</i>	<i>All</i>	
1:00 PM	1:30 PM	Simulation-Driven Design Optimization and Automation for Cordwood-Fueled Room Heaters	<i>Ohio State University</i>	<i>Shawn Midlam-Mohler</i>
1:30 PM	2:00 PM	Advanced Low-Emission Residential Fluid-Bed Biomass Combustor	<i>NTRE Tech</i>	<i>Bartev Sakadjian</i>
2:00 PM	2:40 PM	<i>Closed Door Comment Review Session</i>	<i>Reviewers</i>	

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 CO ₂	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 IH ₂ 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	