Draft Agenda

# ALTERNATIVE AVIATION FUEL WORKSHOP

U.S. Department of Energy,
Bioenergy Technologies Office
September 14–15, 2016 ● Macon, Georgia

## Wednesday September 14, 2016

| Time | Agenda Item (= Auditorium, = Breakout Rooms) |
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| 7:30 a.m.–8:00 a.m. | Registration and Coffee *(Conference Center)* |
| 8:00 a.m.–8:20 a.m. | **Welcome and Opening Remarks, Bioenergy Technologies Office (BETO)**<br>■ Jonathan Male, Director: BETO Overview<br>■ Zia Haq: Importance of Aviation Biofuels at U.S. Department of Energy (DOE) |
| 8:20 a.m.–8:45 a.m. | **Sustainable Jet Fuel Development: Demand, Feedstocks, Pathways, Efforts, and Needs**<br>*A summary of demand, early off-take agreements, feedstocks, pathways under consideration for approval/use, and issues for sustainability, economics, and supply/resource availability.*<br>■ Steve Csonka , Executive Director, Commercial Aviation Alternative Fuels Initiative (CAAFI) |
| 8:45 a.m.–9:45 a.m. | **Overview of Alternative Jet Fuel (AJF) Research, Development, and Deployment (RD&D) Efforts: Key Technical and Economic Challenges Identified for Different Processes**<br>*This session will discuss the key challenges related to commercialization of aviation research, development, and demonstration, it will explore efforts to successfully achieve project scale up (pilot-scale to commercialization) for production of biofuels and biochemicals and approaches on how to overcome these challenges, and distinguish DOE's role in supporting the needs of industry to overcome these challenges. It will highlight some of the key takeaways and commonalities from techno-economic analysis (TEA) work (e.g., key areas for TEA methodological improvement, such as ways of predicting maturation rates and benefits of maturity and key areas for actual competitiveness improvement).*<br>Moderator: Nate Brown, Federal Aviation Administration (FAA)<br>■ Neville Fernandes, Neste Oil<br>■ Mark Staples, Massachusetts Institute of Technology<br>■ Kevin Weiss, Byogy Renewables<br>■ Brice Dally, Virent, Inc. |
| 9:45 a.m.–10:00 a.m. | **Networking Break** |

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| 10:00 a.m.–11:00 a.m. | **Greenhouse Gas (GHG) Life-Cycle Assessment (LCA) Results for AJF: Key Contributors to GHG Emissions and Emissions Uncertainty**<br>*This session will focus on sustainable aviation growth (e.g,. carbon-neutral growth goals), on life-cycle GHG benefit of AJFs, overview of current alternative jet fuel GHG LCA methodologies, outcomes of analyses, and remaining challenges.*<br><br>Moderator: Jim Hileman, FAA<br>■ Ray Speth, Massachusetts Institute of Technology<br>■ Michael Wang, Argonne National Laboratory<br>■ Wallace Tyner, Purdue University<br>■ Sharyn Lie, U.S. Environmental Protection Agency |
| 11:00 a.m.–12:00 p.m. | **AJF Commercialization: Feedstock Systems Supply, Suitability, and Logistics**<br>*This session will provide an overview of recent estimates of resource availability and potential conversion to jet fuel. It will provide an analysis of unknown factors/methodology with regard to estimating future resource availability, discussing why there is a range of estimates of resource availability.*<br><br>Moderator: Kristin Lewis, U.S. Department of Transportation, Volpe National Transportation Center<br>■ Harry Baumes, U.S. Department of Agriculture (USDA)<br>■ Laurence Eaton, Oak Ridge National Laboratory<br>■ David Archer, USDA Agricultural Research Service<br>■ Kent Swisher, National Renderers Association |
| 12:00 p.m.–12:45 p.m. | Lunch |
| 12:45 p.m.–5:00 p.m. | **Breakout Session IA: Enhancing the Economic and Technical Competitiveness of Aviation Biofuels from Lignocellulosic Biomass**<br>*The dialogue will discuss challenges to developing a more comprehensive and comparable set of TEA for a full family of AJF production concepts. Participants in this session will participate with others to discuss the bounds of this topic space, and will work through a series of questions and exercises designed to provoke thought and gather information relevant to the DOE mission and needs of industry.*<br><br>Moderator: Zia Haq, DOE<br>■ Mark Staples, Massachusetts Institute of Technology<br>■ Corinne Drennan, Pacific Northwest National Laboratory<br>■ Mary Biddy, National Renewable Energy Laboratory<br>■ Wallace Tyner, Purdue University |
| 12:45 p.m.–5:00 p.m. | **Breakout Session IB: Fuels Conversion and Scale-Up**<br><br>*The discussion in this session will focus on challenges hindering the scale-up and commercialization of emerging pathways, and on what role DOE can play in aviation RD&D and scale-up of the production of biofuels and key co-products from bench to pilot and demonstration scale. Participants will work through a series of questions and exercises designed to help to identify next steps that DOE* |

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| | *should consider for initiating efforts in this topic space.*<br><br>Moderator: Borka Kostova, DOE<br>■ Glenn Johnston, Gevo Inc.<br>■ Ted Kniesche, Fulcrum BioEnergy, Inc.<br>■ John Holladay, Pacific Northwest National Laboratory |
| 12:45 p.m.–5:00 p.m. | **Breakout Session II: Environmental and Sustainability Considerations and Opportunities to Improve the Life-Cycle Benefits of Aviation Biofuels**<br>*The session will focus on challenges to developing a more comprehensive and comparable set of GHG LCA for a full family of AJF production concepts. Participants will participate with others to discuss the bounds of this topic space, and will work through a series of questions and exercises designed to better understand LCA challenges and the roles of DOE and industry in this effort.*<br><br>Moderator: Siva Subramanian, DOE<br>■ Jeongwoo Han, Argonne National Laboratory<br>■ Robert Handler, Michigan Technological University<br>■ Ray Speth, Massachusetts Institute of Technology |
| 12:45 p.m.–5:00 p.m. | **Breakout Session III: Ensuring Robust Feedstock and Product Supply Chains to Support Aviation Biofuels**<br>*The session will offer a discussion on challenges to developing a more comprehensive and comparable set of resource assessments for a full family of AJF production concepts. Participants in this session will participate with others to discuss the bounds of this topic space, and will work through a series of questions and exercises designed to provoke thought and gather information relevant to the DOE mission and needs of industry.*<br><br>Moderator: Harry Baumes, USDA<br>■ Kevin Kenney, Idaho National Laboratory<br>■ Marty Schmer, USDA Agricultural Research Service<br>■ Ralph Cavalieri, Washington State University |
| 5:00 p.m.–5:30 p.m. | **Day 1 Breakout Session Reports** |
| 5:30 p.m. | Adjourn Day 1 |

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| Thursday September 15, 2016 | | |
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| **Time** | **Agenda Item** = Auditorium | = Breakout Rooms |
| 7:15 a.m.–8:15 a.m. | Networking and Coffee | |
| 8:15 a.m.–8:30 a.m. | **Welcome Back Remarks** | |
| 8:30 a.m.–10:30 a.m. | **Breakout Sessions I–III: Advancement Activity Action Plans** *(same groups)* | |
| 10:30 a.m.–11:30 a.m. | **Breakout Session Day 2 Reports, Action Plans, and Q&A** | |
| 11:30 a.m.–11:45 a.m. | **Closing Comments and Next Steps** | |
| 11:45 a.m. | Lunch and Site Visit | |
| 11:45 a.m.–3:15 p.m. | Optional Site Visit (Group 1): LanzaTech Freedom Pines Biorefinery | |
| 1:00 p.m.–4:45 p.m. | Optional Site Visit (Group 2): LanzaTech Freedom Pines Biorefinery | |
| 5:00 p.m. | Adjourn Workshop | |

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