Bio-Derived Liquids to Hydrogen Distributed Reforming Working Group (BILIWG) Kick-Off Meeting Proceedings Hilton Garden Inn – BWI, Baltimore, MD October 24, 2006

Meeting Participants (* Participated via conference call)

Meeting Participants			
Name	Organization	E-mail Address	
Shabbir Ahmed	Argonne National Laboratory	ahmed@cmt.anl.gov	
Arlene Anderson	U.S. Department of Energy	arlene.anderson@ee.doe.gov	
Balu Balachandran	Argonne National Laboratory	balu@anl.gov	
Tracy Carole	Energetics Incorporated	tcarole@energetics.com	
Julia Cook Moody*	U.S. Department of Energy	julia.moody@go.doe.gov	
Randy Cortright	Virent Energy Systems	randy cortright@virent.com	
Maria Curry- Nkansah*	ВР	maria.curry-nkansah@bp.com	
Shilpa Damle- Mogri	Shell Global Solutions	shilpa.damle-mogri@shell.com	
Patrick Davis	U.S. Department of Energy	patrick.davis@ee.doe.gov	
Carolyn Elam	U.S. Department of Energy	carolyn.elam@go.doe.gov	
Robert Evans	National Renewable Energy Laboratory	bob_evans@nrel.gov	
Roxanne Garland	U.S. Department of Energy	roxanne.garland@ee.doe.gov	
Paul Gottlieb	U.S. Department of Energy	paul.gottlieb@hq.doe.gov	
Nikunj Gupta	Shell Hydrogen	nikunj.gupta@shell.com	
Brian James	Directed Technologies Inc.	brian_james@directedtechnologies.com	
George Kervitsky	BCS Incorporated	gkervitsky@bcs-hq.com	
David King	Pacific Northwest National Laboratory	davidking@pnl.gov	
Curt Krause	Chevron	ckrause@chevron.com	
Theodore Krause	Argonne National Laboratory	krause@cmt.anl.gov	
Stephen Lasher	TIAX LLC	lasher.stephen@tiaxllc.com	
Jerry Lin	Arizona State University	jerry.lin@asu.edu	
Ke Liu	GE Global Research	liuk@research.ge.com	
Maxim Lyubovsky	H2Gen Innovations	mlyubovs@h2gen.com	
Umit Ozkan	Ohio State University	ozkan.1@osu.edu	
Mark Paster	U.S. Department of Energy	mark.paster@ee.doe.gov	

Meeting Participants			
Name	Organization	E-mail Address	
Joan Pellegrino	Energetics Incorporated	jpellegrino@energetics.com	
Ram Ramachandran	The BOC Group, Inc.	ram.ramachandran@boc.com	
Kristen Rannels	Sentech, Inc.	kristen.rannels@ee.doe.gov	
John Robbins	ExxonMobil Research and Engineering	john.l.robbins@exxonmobil.com	
Neil Rossmeissl	U.S. Department of Energy	neil.rossmeissl@ee.doe.gov	
Steven Schlasner	ConocoPhillips	steven.m.schlasner@conocophillips.com	
Lanny Schmidt	University of Minnesota	schmidt@cems.umn.edu	
Hua Song	Ohio State University	song.216@osu.edu	
Satish Tamhankar	BOC Gases, The Linde Group	satish.tamhankar@boc.com	
Sandy Thomas	H2Gen Innovations	thomas@h2gen.com	
Theodore Tsotsis	University of Southern California	tsotsis@usc.edu	
Yong Wang	Pacific Northwest National Laboratory	yongwang@pnl.gov	
Lingzhi Zhang	Ohio State University	zhang.464@osu.edu	

Agenda

8:00 am	Coffee & Sign-In
8:30 am	Review of Working Group Charter & DOE RD&D Targets for Hydrogen Production from Renewable Liquid Fuels • Arlene Anderson, DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program
8:45 am	Renewable Liquids Outcomes Map from Hydrogen Production Technical Team Steve Schlasner, ConocoPhillips
9:15 am	Government Practices in Purchasing R&D: Intellectual Property Provisions at the Department of Energy Paul Gottlieb and Julia Cook Moody, Department of Energy
9:30 am	Source and Availability of Renewable Bio-Liquid Feedstock Streams for Reforming to Hydrogen Neil Rossmeissl, DOE Biomass Program
10:00 am	Break
10:15 am	Production of Hydrogen by Bio-Derived Liquids Reforming ▶ David King and Yong Wang, Pacific Northwest National Lab
10:45 am	High-Pressure Distributed Ethanol Reforming ► Shabbir Ahmed, Argonne National Lab

11:15 am	Distributed Bio-Oil Reforming ▶ Bob Evans, National Renewable Energy Lab
11:45 am	Working Lunch
12:15 pm	Investigation of Reaction Networks and Active Sites in Bio-Ethanol Steam Reforming over Co-Based Catalysts • Umit Ozkan, Ohio State University
12:45 pm	Hydrogen Generation from Biomass-Derived Carbohydrates via Aqueous-Phase Reforming ► Randy Cortright, Virent Energy Systems, INC.
1:15 pm	Integrated Short Contact Time Hydrogen Generator ► Ke Liu, GE Global Research
1:45 pm	Low-Cost Hydrogen-from-Ethanol Distributed Production System ▶ Sandy Thomas, H₂Gen Innovations, Inc.
2:15 pm	Break
2:30 pm	Facilitated discussion to identify potential synergies among R&D efforts, areas for future collaboration, R&D portfolio gaps, forums for working group meetings in FY07, etc.
3:45 pm	Next Steps and Action Items: FY07 Bio-Derived Hydrogen Working Group Arlene Anderson, DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program
4:00 pm	Adjourn

Next Steps Discussion

- How often should BILIWG meet?
 - Quarterly or biannually, depending on what is going on and the potential for coordinating travel with other events.
 - Face-to-face meetings would be ideal, but due to limited travel funds, hold interim teleconferences as needed.
 - Potential date for next meeting is during the DOE Hydrogen Annual Review Meeting (week of May 14, 2007). Scheduling may be tight due to other meetings, but an hour or two of discussion is possible.
- What should be the objectives of the BILIWG?
 - To keep all informed of R&D progress, technical issues, and topics of R&D
 - o To foster collaborations (not just among the entire group) in many forms
- What activities would be the most productive use of your time at future meetings?
 - Set feed standards, discuss need for fuel composition analyses (will be important at the industrial-scale).
 - Identify synergies and promote natural collaborations within informal subgroups (e.g., separations).
 - Involve DOE Biomass Program staff where possible

- o Conduct a gaps/barriers analysis
- o Provide a networking opportunity at the next meeting.
- Involve BILIWG in developing an Outcomes Map (i.e., interfaces, how outcomes feed into each other)

DOE Action Items

Assemble a resource matrix (who's working on what, gaps, overlaps, barriers)
Establish a listserv for DOE to use for gathering technical expert input into DOE strategic planning

Incorporate comments on the white paper and post on the BILIWG/DOE website
Provide list of possible activities/dates for future meetings and gage interest of
working group members

Post RBAEF (Role of Biomass in America's Energy Future) Natural Resources Defense Council (NRDC) Study

Post USDA Polysys Study

Post Science Magazine article by Dr. Lanny Schmidt on reactive flash volatilization